TELEPHONY

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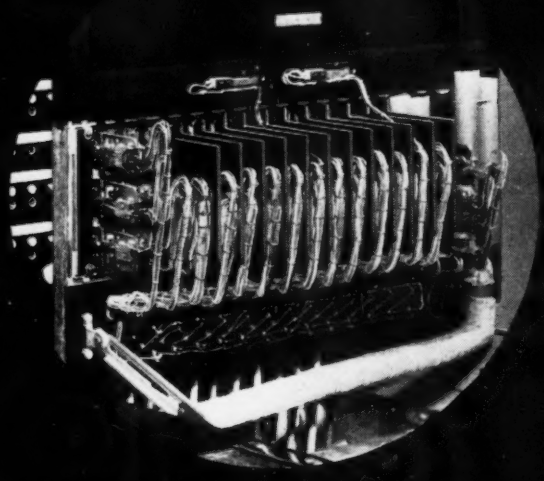
THE JOURNAL OF THE TELEPHONE INDUSTRY

IN ALL TELEPHONY...
THERE IS NOTHING FINER THAN A

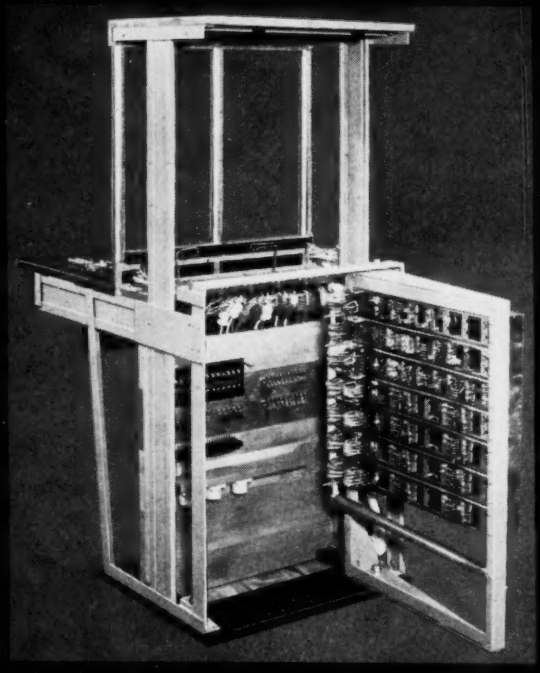
Stromberg–Carlson "No 3"

It is likely that long-distance operation represents the future problem most worthy of serious consideration today. Some of America's largest independent operating companies have chosen Stromberg-Carlson's No. 3 Toll Switchboard to provide a completely satisfying solution—now, and in years to come. A few of the features which distinguish this ultra-modern equipment are illustrated here. Your nearest Stromberg-Carlson representative will gladly explain more.

Corps of operators shown in this picture are at our Plymouth, Ind., installation. The picture clearly indicates, "This equipment is made for peak traffic!"



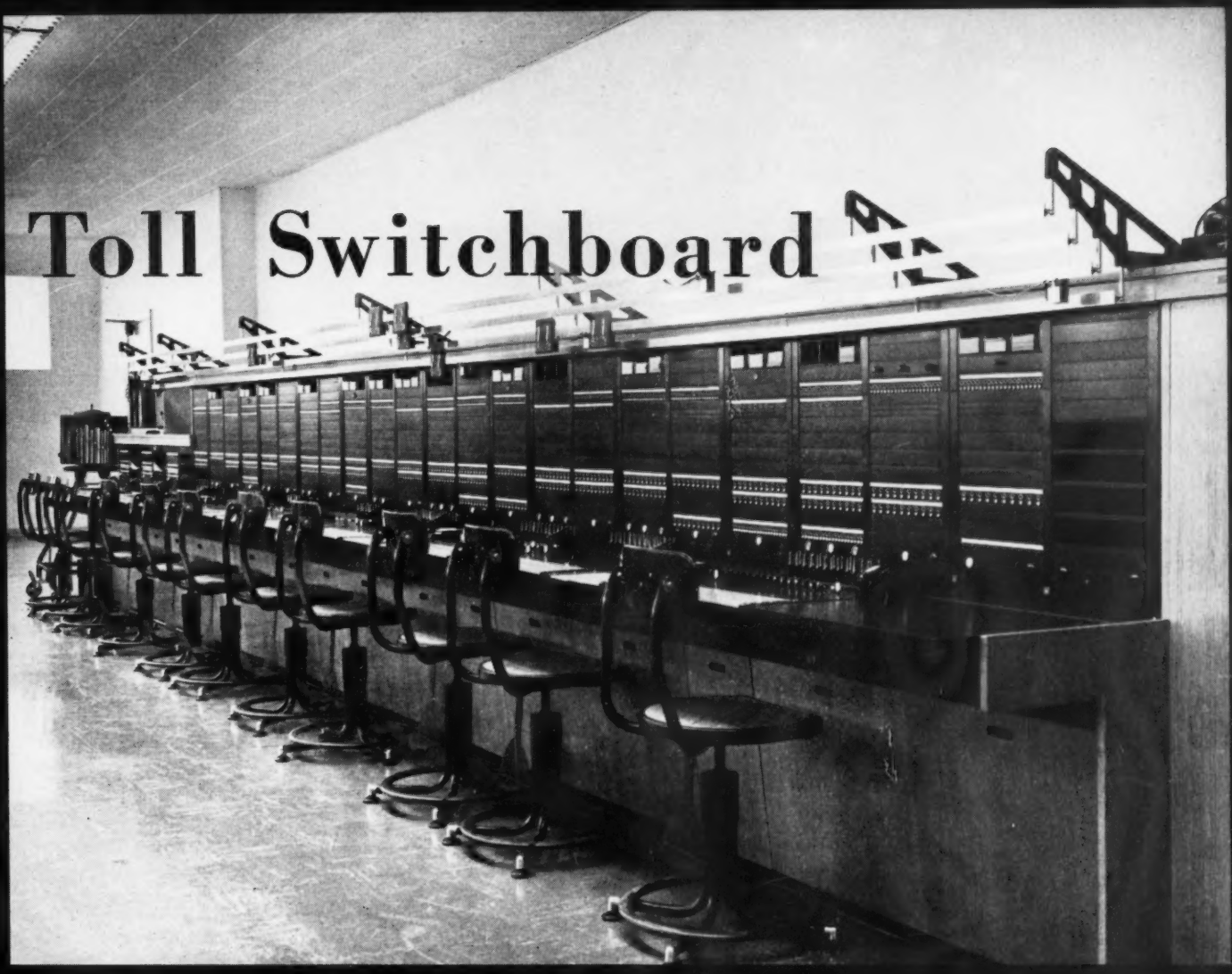
Underside of the Keyshelf—designed for fastest possible maintenance. Note the individual ticket slots for each cord pair.



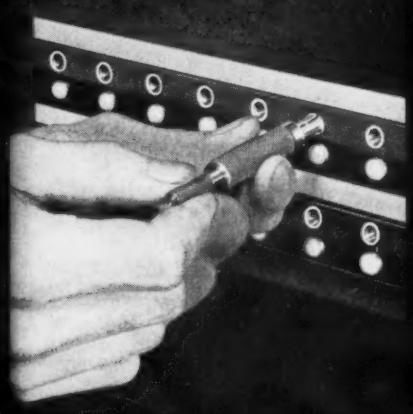
The Relay gate on the Stromberg-Carlson No. 3 Toll Board uses unit circuit plates and swings out for convenience. Both features mean greater, faster accessibility to relays and wiring.

XUM

03" Toll Switchboard



The Carlsbad, New Mexico, installation illustrates, much better than words, the efficiency and compactness of a Toll Exchange system using our No. 3 Type Toll equipment.



Jack Strips feature individually removable Sleeves which are quickly replaceable from the front — while all other lines in the strip remain in service.

The No. 3 Toll Board provides for incorporating, now or later, a standard Keysender — time-saving now, and literally invaluable when Nation-wide Operator Intertoll Dialing is country-wide.

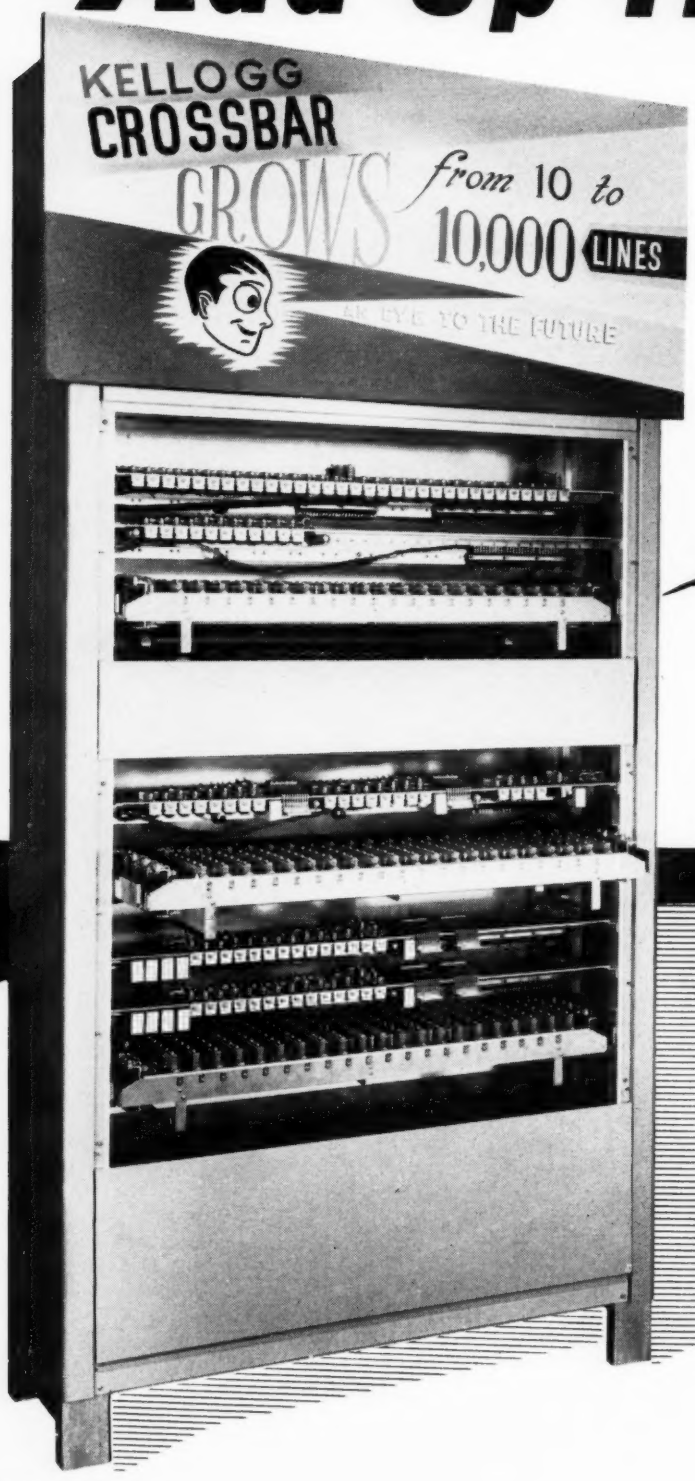
The Service Turret, as compact and convenient as a cordless PBX, may be used either as a Chief Operator's Turret or a Service Operator's Turret.

STROMBERG-CARLSON Factory, General Offices: Rochester 3, N. Y. Branch Offices:

Atlanta 3 · Chicago 6 · Kansas City 8 · San Francisco 3 · In Canada: Stromberg-Carlson Co. Ltd., Toronto

UM

Add Up These Great A



Exclusive

SINCE 1897
KELLOGG

INSTANTANEOUS SELECTION

The Crossbar switch meets the requirements for dial switching with more skill than any other switch produced. The simple movement of an armature a few thousandths of an inch, in tenths of seconds, accomplishes the switching!

LESS WEAR and MAINTENANCE

Switching is done through relay-type armatures. All contact points are made of precious metal. Dirt collection and corrosion are eliminated. Wear becomes a negligible factor—and maintenance drops to a minimum.

KELLOGG *Crossbar* 10 to 10,000 Lines

Superiority PROVED BY USE

Advantages!...

with KELLOGG *Crossbar*

Independent Telephony acclaims Kellogg *Crossbar* as the greatest advance of the century in switching equipment. Basically different, Kellogg *Crossbar* is the simplest, most ruggedly constructed, most dependable dial switching equipment ever produced! . . . Get the FACTS and you'll get *Crossbar!*

LESS INVENTORY

Because of its mechanical simplicity, Kellogg Crossbar provides long, trouble-free, continuous service with far less wear than other equipment. It is not necessary for operating companies to carry large stocks of replacement parts.

READY NOW...

Crossbar has been proved, improved—and proved again! It's ready. It's in use—NOW! And it will pay you to find out just how and why Crossbar will save you money, in building costs, in manpower and maintenance—how it will vastly increase service efficiency and profit potential.

BUILT FOR THE FUTURE

Kellogg Crossbar puts an end to expansion difficulties. With Crossbar your dial system can expand from 10 to ten thousand lines. All component parts can be plugged in—lines can be added easily and inexpensively! Growth and Crossbar go hand-in-hand.

MAIL COUPON TODAY

Get this free booklet describing the wonders of Kellogg Crossbar

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Please send me a free copy of GROWTH, the story of *Crossbar*.

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COMPANY_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

SUPPLIES OF Proven Dependability

● Shipment of guaranteed line supplies made from distribution center nearest you . . . Kellogg's warehouses located in Chicago, Kansas City, Dallas and San Francisco.

The following nationally-known manufacturers of supplies for the independent telephone field are participating in the 1952 Kellogg Co-operative Campaign.

American Creosote Works, Inc.

American Structural Products Co.

Ansonia Electrical Company

Bishop Manufacturing Co.

Boston Woven Hose and Rubber Company

Churchill Cabinet Company

Continental Cross-Arm Co.

Cook Electric Company

Copperweld Steel Company

The Electric Storage Battery Co.

General Insulated Wire Works, Inc.

Gould-National Battery Inc.

W. A. Hammond Drierite Company

Indiana Steel & Wire Company

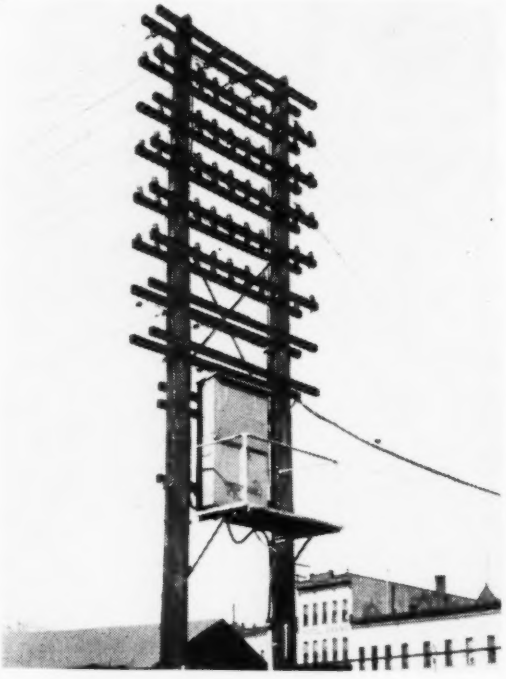
Kester Solder Company

Lorain Products Corporation

T. J. Moss Tie Company

National Carbon Company
A Division of Union Carbide and Carbon Corporation

National Telephone Supply Co.



Economy in Overhead Construction is assured when crossarms manufactured by the CONTINENTAL CROSS-ARM CO., INC., are a part of your wire and pole installation. Made of fully seasoned American woods — built to sound standards of dependability.

Be Sure with Taca Cable Stripper—used for stripping rubber, lead and other kinds of cable sheath. Circumferential and straight cuts can be made at any predetermined part of cable. This safe and efficient stripper is made by TACA CABLE STRIPPER MFG. CO.

Newman Manufacturing Company

Paragon Electric Company

Raytheon Manufacturing Co.

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Reliable Electric Company

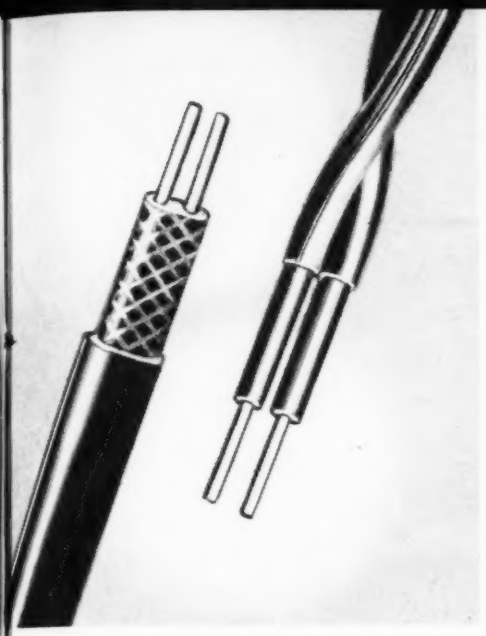
M. M. Rhodes & Sons Company

Schauer Manufacturing Corp.

Taca Cable Stripper Manufacturing Co.

Vulcan Electric Company

Weller Electric Corp.



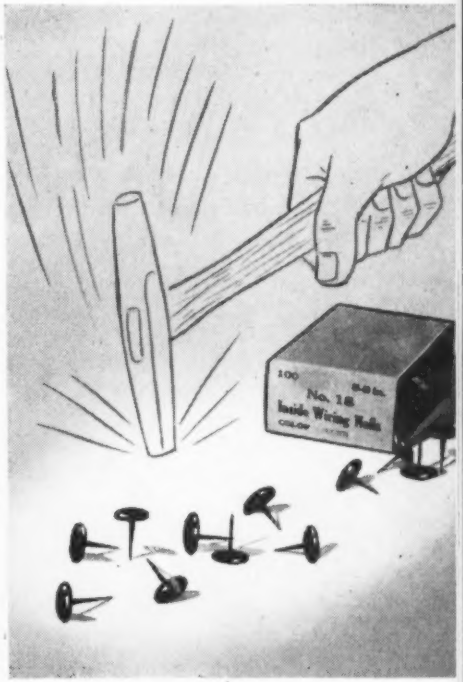
Long Service Life and Low Plant Costs go hand-in-hand with the installation of ENDURPRENE —The Neoprene Drop Wire available in both Copperweld and Bronze. This flexible and easy to handle wire is made by the GENERAL INSULATED WIRE WORKS, INC.

"A Long Time Between Poles—It's Copperweld." The permanent high strength of this non-rusting line wire makes it the safest and most economical conductor for long-life, long-span construction. Made by the COPPERWELD STEEL COMPANY.

Simple, Quick and Sure! For splicing two wires of different sizes, there's nothing simpler than using Nicopress Reducing Sleeves and the Nicopress 17-2 Tool. Splices are always tight and strong. Tool and sleeves are made by the NATIONAL TELEPHONE SUPPLY CO.

Time Proven—for 60 years Exide Batteries have been serving the telephone industry . . . the Manchester positive plate with its button type construction provides long life . . . use Exide-Manchex for all your battery requirements. ELECTRIC STORAGE BATTERY CO.

Sealed Against Trouble! Communication equipment manufacturers demand Kester Plastic Rosin-core Solder, because it makes a perfect seal. Prevents high-resistance joints and intermittent open-and-closed circuits. Avoid trouble —use KESTER SOLDER COMPANY solder.



Why Do It the Hard Way? Making neat installations is easy—with Rhodes Wiring Nails! Designed for telephone work—quality insured by driving, bending, withdrawing, and immersing tests. Made by M. M. RHODES & SONS CO., in several colors and pin-lengths.

Send Your Next Order for Supplies to

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Established 1897
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105 Glass Street, DALLAS 2, TEXAS
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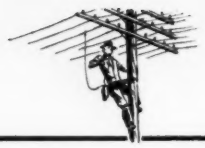
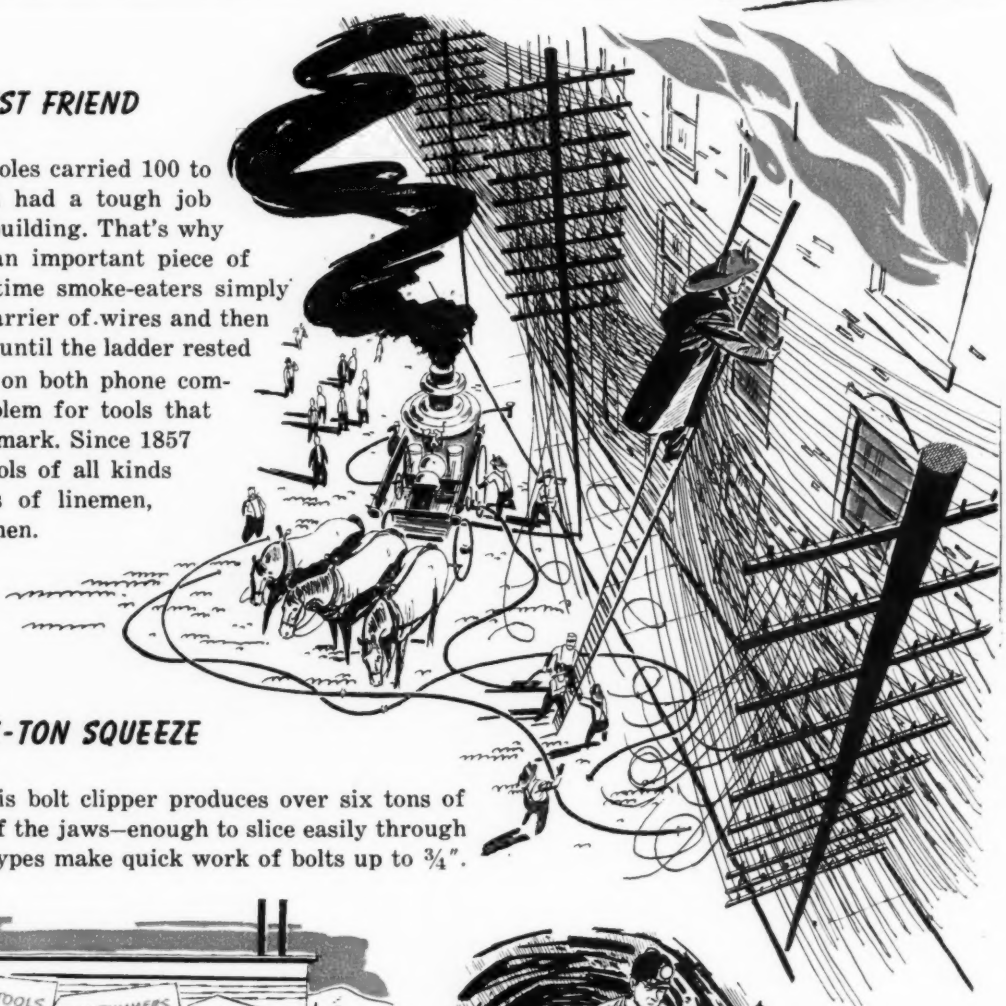
OFFICES:
406 South Main Street, LOS ANGELES 13, CALIF.
720 S. W. Washington St., PORTLAND 5, OREGON
912 Pioneer Building, ST. PAUL 1, MINNESOTA

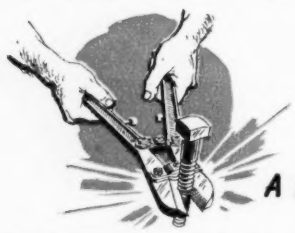


CHECKING THE LINE... via GraybaR

WHEN CUTTING PLIERS WERE THE FIREMAN'S BEST FRIEND

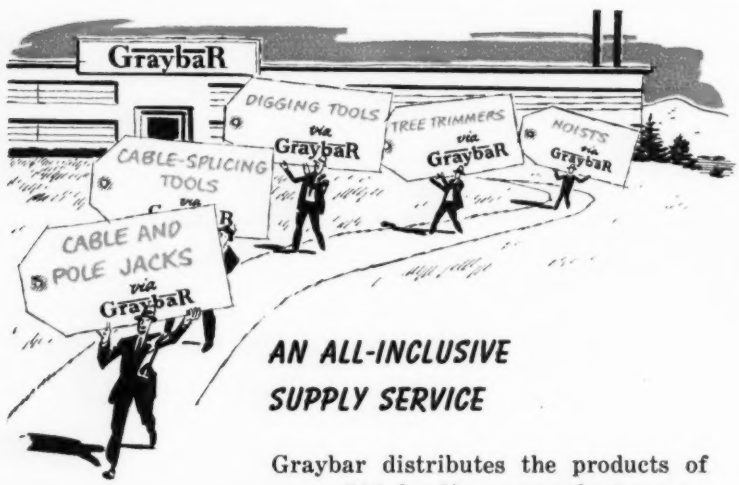
Back in the days when city poles carried 100 to 200 telephone wires, firemen had a tough job just getting near a burning building. That's why cutting pliers became such an important piece of fire-fighting equipment. Old-time smoke-eaters simply placed a ladder against the barrier of wires and then cut away strand after strand until the ladder rested against the building. Rough on both phone company and pliers, but no problem for tools that bore the famous Klein trade mark. Since 1857 Graybar-distributed Klein tools of all kinds have reliably met the needs of linemen, electricians . . . and even firemen.





A SIX-TON SQUEEZE

The leverage provided by this bolt clipper produces over six tons of cutting pressure at the heel of the jaws—enough to slice easily through a ¼" annealed bolt. Larger types make quick work of bolts up to ¾".



AN ALL-INCLUSIVE SUPPLY SERVICE

Graybar distributes the products of over 200 leading manufacturers – among them many of the best-known tool brands . . . tools that linemen need, know, and respect. By ordering from this single source, you save purchasing paper-work and assure the *fastest possible* deliveries. Remember, your local Graybar Representative will be glad to assist at all times.

EVEN SOLID ROCK CAN'T STALL IT!

Thor ½" portable drills get *really* rough treatment from mining companies. Using carbide bits, Thor drills bite out 1¼" holes in solid rock without stalling – ample proof of the strength of the Thor motor and gearing . . . proof, too, of its ability to handle the toughest pole-line construction job. The complete line of portable Thor drills, saws, grinders, hammers, nibblers is distributed by Graybar. 209-232

GRAYBAR ELECTRIC COMPANY, INC.
Executive Offices:
Graybar Building, New York 17, N. Y.

Call Graybar first for... Graybar Everything in Telephone Supplies

IN OVER 100 PRINCIPAL CITIES

Now you have an FWD for small crew units, too!

This model LD answers demand for a true 4x4 in the light-duty class. And you get it with standardized bodies that fit your work.

An FWD earth boring rig with full-torque power take-off mounted on the new LD chassis.

The LD is a natural choice for materials transport. 14,500 lbs. gross vehicle weight.

This LD is a mobile "platform" for low cost, efficient tree trimming.

Look into the dollar savings and performance you can get with the new LD! This *light-duty* model has brought acknowledged FWD advantages to an entirely new FWD work range. AND — you can get the LD complete with the exact type of body and equipment you need! FWD is the *central source* for complete mobile workshops (78 combinations) . . . including cabs, winches, derricks, boring machines, platform and line bodies. Get full facts from FWD or a nearby FWD distributor. The Four Wheel Drive Auto Co., Clintonville, Wisconsin, and Kitchener, Ontario.

Built by the makers of America's Foremost Heavy-Duty Trucks

You buy more than a truck when you buy an FWD

Extra traction and proper distribution of weight and power give you all this:

- Ability to follow the job safely, on or off the highway.
- Ability to restore service faster — meet construction schedules — regardless of weather.
- Lower maintenance cost (up to twice the tire life).
- Up to twice the truck life.

World-Wide Sales and Service

FLASHES AND PLUGS

ALLO! ALLO! "Our telephone service here in America is phenomenal," writes George Grim, columnist for the Minneapolis *Morning Tribune*. "We rarely run into difficulty. But I have been driven to mental short circuits by many overseas telephone systems." He continued:

Take the telephone in France, for instance. The instrument looks like a disappointed trumpet, with a feeling of antiquity about it.

It tinkles tentatively. You pluck the telephone from its wire cradle and shout, "ALLO, ALLO." A faint, metallic allo, allo comes from the ear piece, accompanied by what could be the crackling of a Geiger counter when approached by an atomic bomb.

You shout. The voice from Lilliput, in strangely strangled French, tries to tell you something. You finally hang up, deciding that, if it's important, the voice will come around and see you.

Then, there was the telephone in my room in the Hotel Magestic in Belgrade, Yugoslavia. It rang early one morning.

"Your call to Stockholm will come through at nine," said a very triumphant voice. This was all very well, except that I hadn't placed a call to Stockholm, and wouldn't know whom to talk to if I had.

"I didn't place a call," I said.

"Your call will come through at nine," the voice repeated defiantly. There was the click of a cut connection. I didn't find out any more at nine since I had an appointment elsewhere.

That was the same telephone I used to report that a man's blue suit with a Berlin tailor's label had been left, neatly pressed, in my closet.

"There should be a numbered slip pinned to the pocket," said the voice. "Will you look?" I did.

"It has my room number," I told the voice on the telephone. "But there must be some mistake, I don't own such a suit."

"It has to be your suit," said that same positive voice, followed by a disconnect. When I came back at lunch time, the suit was gone.

In wartime China, the telephone wasn't a method of communication, but a challenge to lung power. You kept hollering, "Wei—Wei." Usually nothing was heard but static. We had two dial systems in Chunking—one made in Berlin and one in Chicago. And they just refused to unite.

The most amazing telephone of all was in a room in the Metropolitano Hotel in Quito, Ecuador. I picked it up to get room service. Dead.

So I followed the wires from the base of the old instrument to the wall plug. One bare wire had popped out of its terminal. I poked it in; the voice downstairs spoke alert Spanish.

That evening I asked the manager please to fix the telephone.

"Sir, we had considered that," he said seriously. "But we have always decided otherwise. It is actually a convenience, sir. We wish to call you, but it is quite impossible for the little wire always comes out. But if you wish something, you have only to place the wire in the little hole, and we are at your service."

All right, so the telephone is wonderful.

• • •

LONG CALL FOR SHORT HAUL. A telephone call to Washington, D. C., was needed recently in Ft. Worth, Tex., to get a man, charged with criminal assault, across the street from the county jail to the courthouse for his trial.

Shortly before the trial, officers learned the man recently had been given a two-year federal court sentence for forging a government check. That put him legally in custody of the Federal Bureau of Prisons.

U. S. Marshal J. R. Wright called Washington to get permission to take the man to court.

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

February 16, 1952

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Telephone WA bash 2-2435
608 S. Dearborn St., Chicago (5), Ill.
U. S. A.

XUM

pick the brush Killer that's proved for the job!

When you pick a product for brush control, you can't afford to test 50 or more formulations to determine which one is best for the job. *But we did*—in cooperation with public utility companies, highway departments, railroads and spray service organizations. These tests on many species of brush in all sections of the country at all seasons of the year *proved* that Esteron* Brush Killer and Esteron 245 should be your first consideration in any successful brush control program. Here's why:

Both contain highly effective low volatility propylene glycol butyl ether esters which have been proved by actual use over thousands of miles of right-of-ways. Esteron Brush Killer, a mixture of the 2,4-D and 2,4,5-T esters, is widely used for control of mixed stands of brush. For certain resistant species that need a straight dose of 2,4,5-T—Esteron 245 is the ticket! It is successful also for year-around basal bark and stump treatment.

Both products have excellent storage qualities.

Yes, good results depend on the brush killer you use and how you use it. Pick the one that's *proved* for the job! You are invited to call on Dow sales and technical men for consultation on your brush control problems.

**ESTERON is a registered trade mark of The Dow Chemical Company, largest producers of weed, brush and grass control chemicals.*

ESTERON BRUSH KILLER and ESTERON 245

CONTAINING NEW LOW-VOLATILITY ESTERS

THE DOW CHEMICAL COMPANY

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St. Louis • Houston • San Francisco • Los Angeles • Seattle
Dow Chemical of Canada, Limited, Toronto, Canada

DOW
CHEMICALS
INDISPENSABLE TO INDUSTRY AND AGRICULTURE

The Little "Motion" That Always Carries

A costly formula in modern telephony is . . .

MOTION × WEAR = WASTE in maintenance, repairs and lost revenue. A single mechanical failure on this call, another on that call, multiply into a system that will not carry the potential traffic on which your earnings are based.

That is why motion is reduced to a practical minimum in North systems where switching is entirely by relays. The simple contact action shown above, represents the maximum motion required on any North telephone relay. The wear involved is so minute it cannot be expressed in measurements, although one such armature motion may relay a dozen circuits simultaneously.

SEE IT IN OPERATION FOR PROOF

Add all of the action required to find and connect a line in a North system and you still have an insignificant total possible wear factor. That's one reason why every signal set in motion in a North system *always* carries through to complete a revenue earning call instead of a cost-building service call. It will pay *you* to get the full facts about

NORTH ALL-RELAY TELEPHONE EXCHANGES

THE NORTH ELECTRIC MANUFACTURING COMPANY

Originators of ***ALL RELAY*** *Systems of Automatic Switching*

1430 South Market Street, Galion, Ohio, U.S.A.

XUM

One of the largest and smallest Exide telephone batteries—the powerful 4000 a.h. capacity 26-cell HB 21 and the 15 a.h. 2BI-5 held by a "Pentel" operator.

Main Exchange building of Peninsular Telephone Company, Tampa, Florida.

LARGEST TYPE TELEPHONE BATTERY BUILT BY Exide INSTALLED IN MAIN EXCHANGE OF "PENTEL"

This giant 26-unit Exide, recently installed by the Peninsular Telephone Company, has a capacity of 4000 ampere hours at the 8-hour rate. In times of emergency the batteries will instantly and automatically take over the main exchange and operate it for five hours.

The new battery has twice the capacity of the batteries it replaced. Furthermore, because of its compactness, another giant 26-unit Exide can be installed in the same room when or if needed. A similar installation is in the company's St. Petersburg Exchange.

The company states that in addition to providing emergency power, the Exide batteries "will improve the system by eliminating noise from the lines, and will last for many years with fewer cells to maintain."

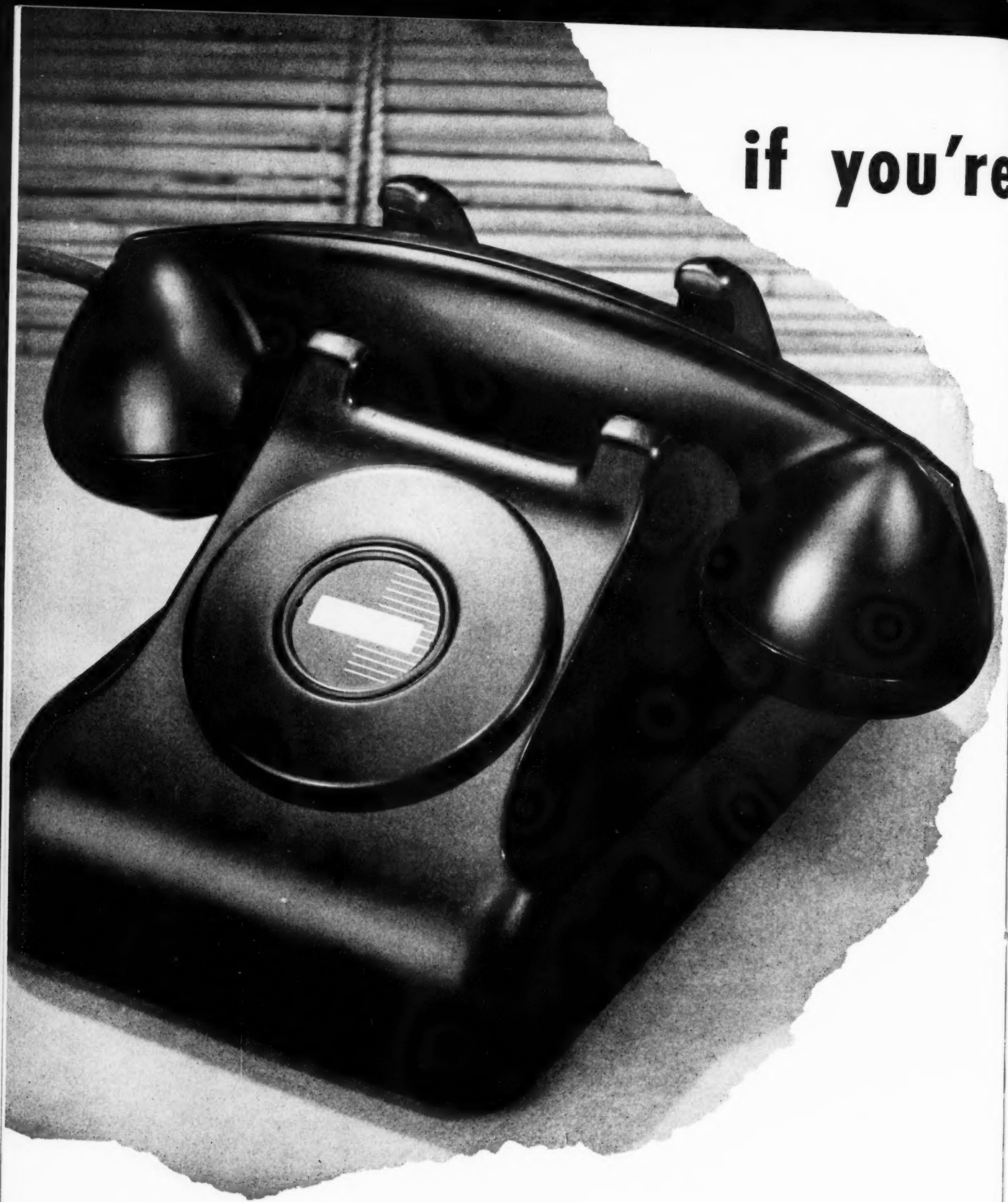
For dependable performance and economy, use Exide Batteries for all central office and private branch exchange equipment.

THE ELECTRIC STORAGE BATTERY COMPANY • Philadelphia 2

Exide Batteries of Canada, Limited, Toronto

"Exide" *Reg. Trade-mark U.S. Pat Off.*

1888 . . . DEPENDABLE BATTERIES FOR 64 YEARS . . . 1952



if you're

LEICH MANUFACTURERS OF TE

e in business to make money...

All brands of telephones work. You may buy one kind because you think it's better, or because you feel kindly toward a particular company, or maybe you just got started using that kind.

Leich telephones have an exclusive feature that was designed specifically to help you make more money.

Which it does.

This is the feature whereby the same telephone, without any changes or additions, can be used for either wall or desk installations.

You save on instrument purchases because it's not necessary to buy both wall and desk type telephones. Since every Leich telephone is usable for either wall or desk installations, you can stock fewer telephones.

The time and bother in converting other type telephones from wall types to desk types or vice-versa is forever eliminated when you use Leich telephones.

Installation time is saved because your installer always has the right instrument.

Leich telephones have always been known for their dependable performance. This wall-desk type is no exception. In fact, we know from experience that it is the most faithful performing instrument that Leich has ever built.

Telephones are a major expense. Try this modern Leich telephone. Your money will do you more good.

Leich Sales Corporation,
427 West Randolph Street,
Chicago 6, Illinois.

F TELEPHONES, SWITCHBOARDS AND RELATED APPARATUS SINCE 1907

UM

THERE'S NO OTHER BATTERY LIKE A C&D PlastiCal!

C&D's PlastiCal is *basically* new—the century's greatest battery development! There's no comparison between it and a conventional telephone battery.

As its name suggests, it's a lead-*calcium* battery in a rugged, clear-plastic case. Calcium, unlike antimony, does not "poison" negative plates. Results: only one-fifth as much charging current (and, therefore, less water) is needed to maintain the battery. Thus, positive plates stay strong, and the amazing PlastiCal lasts and lasts—*at least 40% longer* than ordinary batteries! As for the case—it's much lighter, more compact, more durable. And that's not all! C & D's patented, explosion-proof Saftee-Vent, and the *exclusive* PlasTite post seal—the seal that permanently stops "creepage"—make this great battery even greater! PlastiCal comes in a complete range of sizes from 10 A.H. to 660 A.H.

C&D

BATTERIES, INC.

OF CONSHOHOCKEN, PA.

(In the Philadelphia Area)

SALES AND SERVICE

Boston, New York, Philadelphia, Syracuse, Buffalo, Pittsburgh, Washington, Atlanta, Jacksonville, New Orleans, Cleveland, Detroit, Chicago, St. Louis, Minneapolis, Dallas, Denver, San Francisco, Los Angeles, Portland, Seattle.

IN THE NATION'S CAPITAL

BY FRANCIS X. WELCH
WASHINGTON EDITOR

Illinois commission's theory of tying rate of return to cost of capital further analyzed in light of 10 other Bell rate cases and one Independent case. (See TELEPHONY, Feb. 2, p. 13 for summary of Illinois commission's decision in Illinois Bell case.)

THERE have been all together a dozen important telephone rate cases, decided by as many different state commissions, in a little more than a single month just gone by. If the New York commission should come through with the long-awaited New York Telephone Co. case in the near future—as New York Commissioner Spencer B. Eddy recently promised—we will have a baker's dozen, including some of the more important regulatory tribunals in the nation.

In a table accompanying this article, there is set out, state by state, in columns (1) the amount of rate increases allowed as compared with (2) the amount asked for; and (3) the percentage of return allowed, on the net investment or the cost of the property less depreciation. All of these cases involve Bell System companies, except the Rochester (N. Y.) Telephone Corp. But because of multiple-state operations, only five Bell System companies were involved.

Three different Bell Companies had nine cases between them: Northwestern Bell Telephone Co. (Minnesota, Nebraska, and South Dakota); Southern Bell Telephone & Telegraph Co. (Alabama, Florida, Kentucky and Tennessee); and Southwestern Bell Telephone Co. (Kansas and Missouri). The single state cases concerned Illinois Bell, Wisconsin Bell, and the Rochester case already mentioned.

Because of the widely varied local conditions, there is not much significance in comparing either the dollar amounts asked, or the dollar amounts allowed. It goes without saying that an increase of a million dollars in a sparsely settled state like South Dakota has a much greater proportionate impact than an increase of over $10,000,000 in Missouri or as compared with the $22,000,000 asked in Illinois, but not received at all.

For the same reason there is not much significance in comparing the proportions of increase granted with the amounts requested. These vary from nothing, in Illinois, to a granting of 73 per cent of the amount requested in Alabama. But the intravention of court appeals and other collateral issues complicate any such comparisons so as to make them of little meaning.

We must read the opinions and findings of the commissions to arrive at the really significant points. The point which struck this observer most forceably was the emphasis being placed by the state commissions on so-called "cost of capital" in arriving at a reasonable rate of return. This may represent a "trend" although it is not at all a new factor. The thing that is new is the degree of emphasis being placed upon the "cost of capital." Later on, your correspondent will note a number of other factors, which can and have been considered, in arriving at a reasonable rate of return—comparative earnings on other forms of investment and other public utility operations—besides the telephone company — to mention just one. But it is an interesting fact that six of the state commissions seem to base their fixing of the return more or less on some consideration of cost of capital: Florida, Illinois, Kansas, Minnesota, Missouri, and South Dakota.

Looking Backward to the Future

But there is a difference—an important difference—in the application of the "cost of capital" standard in fixing a reasonable rate of return for a telephone company based on *past* experience, as compared with *future* pros-

Comparison of Recent State Commission Action on Telephone Rate Case Petitions*

State	Asked	Allowed	Return
Alabama	$ 4,912,279	$ 3,655,921	6.23%
Florida†	7,249,000	2,124,540	6.12%†
Illinois*	22,000,000	Nothing	5.2 %*
Kansas†	5,940,000	4,725,000	6.35%†
Kentucky†	Existing rate	2,732,000	—†
Minnesota†	7,805,484	4,933,000	6 to 6¼ %†
Missouri†	16,656,000	11,119,000	6.5 %†
Nebraska	1,036,674	556,000	5.66%
New York (Rochester Telephone Corp.)	——	1,355,000	—†
South Dakota	1,600,000	1,080,000	6.00%
Tennessee	7,224,455	3,750,000	No finding
Wisconsin	13,000,000	4,500,000	5.7 %

*The return allowed by the state commissions is stated here as a percentage of the net investment, or estimated cost of the intrastate telephone company plant less depreciation, except in Illinois where emphasis was primarily placed on the annual cost of capital (4.83 per cent through the end of 1950, which was, in turn, estimated to equal 5.2 per cent on property costs).

†Allowance was made for the specific recognition of probable increased future cost of plant or financing thereof.

pects. In this department (TELEPHONY, Feb. 2) it was pointed out that the Illinois commission had used the cost of capital to the Bell System to the end of 1950 (4.83 per cent) as a test of reasonable earnings and reasonable rates.

Having applied this test, based solely on past experience, the Illinois commission refused to allow any rate increase to the company for the immediate future. When an attempt was made by company witnesses to suggest that cost of capital might be somewhat different in the months ahead—considering the inflationary period through which we are passing and possible changes in the company's capital structure—the commission refused to make an allowance.

It dismissed such an argument as hypothetical, and stated flatly that it was "determining the level of return on the basis of the amount which the Bell System had paid for equity money in the past, and which has been demonstrated to be sufficient to enable it to raise unprecedented amounts of capital." But does it necessarily follow that the company's cost of capital will continue on the same basis in the future?

A More Liberal View of Future Capital Requirements

It is encouraging to note that several of these state commissions seem to disagree with the rigid formula (as used by the Illinois Commerce Commission to justify its rate increase rejection) based on past cost-of-capital experience. No less than five state commissions specifically referred to the possibilities of *future* capital requirements increasing during the inflationary period through which we are passing. Some quotation from the state commissions' opinions is worth repeating on this point.

The Kansas commission, in allowing a 6.35 per cent return, explained that its emphasis on "cost of capital" was because of the fact that Bell System companies do not compete directly in the open money market for new equity capital. (Independent companies please note: *they do.*) The commission, therefore, thought that Southwestern Bell should earn a rate of return "which will enable it to bear its fair proportionate share of the earnings required by AT&T to enable *it* to compete for new capital."

The commission also foresaw the need of the company *improving* its earning position, through the reduction of debt ratio. (It might be noted in passing that the commission's allowance of 6.35 per cent return on the "reasonable value of the applicant's intrastate property" was quite coincidental to its finding, as reasonable "a return of 6.35 per cent on the capital employed by applicant in its intrastate operation." The commission stated:

"It should be noted that as the debt ratio of the system is reduced the earnings required on the investment of AT&T in applicant will increase. This is so because the equity capital is secured at a higher cost than is the debt capital. This higher cost is justified to a degree because as the debt ratio is reduced the emergency borrowing power of the system is increased.

"As we have pointed out, applicant (Southwestern Bell) depends for its quality capital upon the ability of AT&T to secure capital and in our opinion the recent success of the latter can be maintained even with an improved capital structure if the system earnings attain a level equal to 6.35 per cent of capital employed."

The Minnesota commission was quite cognizant of the steady rise in telephone expenses and plant costs. It pointed to sharp rises in wages and taxes and the jump in investment *per telephone* from $197 in 1941 to $393 in 1950. It found that existing rates had dropped the return to 4.53 per cent and estimated that the new rates would yield from 6 to 6¼ per cent. In order to make the company's rising cost experience as up-to-date as possible (reflecting higher construction costs), the Minnesota commission considered that plant cost as of the end of 1951.

In Missouri, the commission's decision was far from satisfactory to the Southwestern Bell company. Not only did the commission rap the service, especially in failing to meet the demand for new service, but it also quietly ignored its own former provision for allowing the company some credit in its rate base for the amount in the depreciation reserve. Southwestern's management was also grumpy about getting only two-thirds of their requested $16,500,000 increase request.

But on this basic question of *looking forward,* in allowing rate of return, the Missouri commission appeared more realistic. It had reason to be. Twice in recent months, it had guessed wrong on estimating the company's future earnings. In February, 1949, it found the company earning less than 4½ per cent. It authorized a rate increase calculated to bring in 6.437 per cent. Sixteen months later, the company earnings were again back to 4½ per cent. Again, the commission jacked up the rates to a level estimated to produce 6.45 per cent, even including a lump sum permission ($1,450,000) to offset inflationary factors draining future earnings.

Here is the commission's explanation for once more permitting an increase of rates, looking to *future* prospects, instead of relying wholly on *past* experience, and on by-gone cost-of-capital performance:

"As of Dec. 31, 1951, we find from the record made in this case that this company is making less than 4 per cent on its net investment. It is apparent from the record made in this case and from a study of the company's operations in recent years, that this commission, in prescribing rates for applicant, must do more than look into the past. Using the past experience as a guide, we must try to decide how future operating conditions will affect the company's earning position."

The Florida commission broke down its return allowance of 6.12 per cent into two parts. It said it was allowing a 6 per cent on the cost of present plant and an extra .12 per cent to allow for the higher cost of plant being added for future use.

Although no definite finding of return percentage was announced in the Rochester case, there was reference

(Please turn to page 38)

Washington Company Gets REA Loan

During the week of Jan. 28 to Feb. 1, the Rural Electrification Administration approved one loan allocation for the extension and improvement of rural telephone service.

Cohassett Beach Telephone Co., Aberdeen, Wash., on Jan. 30 was granted an allocation of $107,000. The loan funds will be used to finance the extension and improvement of rural telephone service in Grays Harbor and Pacific counties.

The company now serves 407 rural subscribers over 31 miles of line through the dial central office at Westport. The REA funds will enable the company to build 18 miles of new line, rebuild eight miles of the existing line, expand the Westport central office, and install a new dial central office at Grayland to serve 193 new subscribers mostly in the Grayland-Tokeland area. There will be no toll charge for calls between the two central offices of the system.

When improvements and extension made possible by this loan are completed, the system will provide modern dial service to 600 rural subscribers from 48 miles of line.

XUM

Trouble Clearing

Analysis of Trouble Calls for Thought and Thoroughness

By L. N. MARTIN

PART 9. The preceding article in this series appeared in the Jan. 12 issue.

THE words "Classification" and "Analysis" have somewhat the same meaning, but for our purpose the word "Classification" will mean the first breakdown of trouble by Class of Plant (TELEPHONY, Dec. 1, p. 16), while the word "Analysis" will denote a further breakdown of one or more classes of trouble made for the specific purpose of determining what steps can be taken to reduce the amount of trouble. Every case of trouble is *classified* as soon as it is cleared and the number of cases under each class are summarized at the end of each month or quarter. On the other hand, trouble is ordinarily *analyzed* only when it is excessive or when it has an upward trend.

The specific purpose of an analysis must be kept in mind. For example: A plant man is asked to furnish an analysis of his open wire trouble which is too high and getting higher. Quite often he will submit a report in which he has divided his open wire trouble into: Opens, Shorts, Crosses and Grounds. Now this gives no clue whatever to the cause of the trouble or what can be done about it. Furthermore, the only difference between a short and a cross is the manner in which two wires get together.

We have stated several times that so far as possible the *primary* cause of each case should be ascertained. However, for the purpose of an analysis, this does not always apply and, furthermore, it may be difficult to determine that a given cause is primary, secondary or contributory. What is wanted is a cause *that the company can do something about.*

Let us consider a specific example: After a very windy day a company finds that it has a large number of shorts and crosses in its open wire plant. Now it is easy to say that the cause is "Wind" and that would be quite true. But the company can do nothing about the wind. The repairman should look for some contributing causes. On the first case a tree stands near the lead. It appears to be well trimmed and does not touch the wires, but in a strong wind that tree will sway and some of the small branches will whip the wires. Tree interference is another cause of this case and it is a cause that can be remedied. That case should be charged to "Tree Interference."

At the next location of trouble there is no tree but, after the cross is shaken out, the repairman sees that one wire has much more slack than the other. That is a common cause of trouble. The two wires do not swing at the same rate and the longer wire wraps around the other. That case may be charged to "Uneven Slack."

At the next case all looks well until the repairman discovers that a pole is rotted at the ground line. This is not noticeable on a calm day but in a gale that pole will sway and cause wire trouble. This case may be charged to "Deteriorated Pole."

Therefore, we may make the following rule for analyzing trouble: *Find all the causes that contribute to the trouble, then select from among them a cause which the company can hope to control or eliminate.*

This discussion on the effect of wind on outside plant leads us to the subject "Storm Trouble." There are storms such as tornados, hurricanes, heavy sleet or ice storms, and some lesser storms that no plant above ground can be expected to withstand. Large fires in cities, forest fires, earthquakes, explosions, floods, etc., also belong in this class. A good general term for all of them would be "Disaster Trouble." There is little or nothing that can be done to prevent this type of trouble. It may be charged off as an "act of God."

However, since no one will be blamed for this type of trouble, some plant men are prone to charge as many cases as possible to "Storm Trouble." How can a line be drawn between "Storm Trouble" and that which is not storm trouble? We must remember that the plant is designed to withstand an ordinary summer thunder storm with some gusts of high wind. It is also built to withstand a reasonably heavy ice load.

It is difficult to draw a definite line but when in the neighborhood of the trouble we find sound trees (not hollow or dead trees ready to fall) broken off or uprooted and houses or barns (not an old barn that has been leaning for years) blown down or badly damaged, we can conclude that there has been a storm. Perhaps the best way to settle it is to have the management or some one well up in the organization decide that there really was a storm before the repairmen are permitted to charge trouble to "Storm."

The same lot of trouble may be analyzed in several different ways and two such analyses may be very effectively combined in one report. On page 46 of the Dec. 8 issue of TELEPHONY we show a two-way analysis of open wire trouble. The analysis by months was necessary in this case because the company's only record was the log. If they had kept a complete set of trouble records, they would have already known that this trouble was excessive and that it had an upward trend. Open wire trouble may sometimes be analyzed by causes and by leads. The company then knows *what* to look for and *where* to look. Relay trouble may be analyzed by type of trouble and type of relay or by type of trouble and switchboard position, etc.

If a company feels sure that it knows the reason for excessive trouble, an analysis would be unnecessary work, but they should be very certain about this. We have encountered many cases in which the repairmen believed that a certain thing was the major cause of trouble, but the cold figures of an analysis showed that something else was the major cause and that the thing suspected played only a minor part. Perhaps when a certain type of trouble is hard to locate or hard to clear, or both, it makes such an impression on the minds of the repairmen that they think that it is the most serious trouble as to number of cases.

An analysis by causes will usually show that one, two, or possibly three causes account for the bulk of the trouble, and hence the point to attack is clearly indicated. In a few analyses, however, the causes will be very scattered and inconclusive. An analysis on another basis may then be made. We recall a case in which an analysis by location was very effective: A fairly large exchange had excessive drop wire trouble and an analysis by causes was inconclusive. The trouble for the past six months was then broken down by the terminal addresses out of which the drops worked. The results were then

posted on a plat of the city. This showed clearly that most of the trouble was in one corner of the city and in an area that comprised about one-sixth of the area of the city. This company then knew just where to send their men to make wholesale repairs to their drop wire plant. Without the analysis, much time and money would have been wasted covering the entire exchange.

An analysis may be made of trouble during past months or it may be made currently. When a company finds that a class of trouble has become too high, it will want to find the reason as quickly as possible, and this means going through the records for the past several months. But do the records contain enough information to make a useful analysis? We have recommended that complete information be recorded on each case of trouble at the time it is cleared so that the record will not only show what was found but the *cause*.

However, some companies will think that this involves too much work. If the record of past trouble is not complete, then the only thing that can be done is to start a current analysis at once. It will be at least a month before enough data is gathered to be of any value, and several months is better. If a company is alert to the first indication of an upward trend, it may be able to start a current analysis in time to accumulate sufficient data before the trouble crosses the "par" line.

The analyses will differ for each class of plant:

Outside Plant. We have already offered some suggestions on the analysis of this trouble. The weather is a factor in much of the outside plant trouble, but since the plant is built to withstand any ordinary weather, a company will usually find that in each case there is some fault or omission in the construction or maintenance that has contributed to the trouble. When these conditions are rectified, the plant will withstand the weather. Deterioration is also a basic cause of outside plant trouble and this also is subject to control. There will always be a few cases in which a cause subject to control cannot be assigned and such analysis will contain the item "Cause Unknown." "Cable Trouble" deserves special consideration and we expect to cover this in a separate article.

Station Equipment. Unlike the outside plant, the telephone set is not often damaged by the elements or by any outside force. There will be some cases of damage by some human activity near the set, but these cases are rarely numerous. Set trouble will come under three general headings:

(1) *Manufacturing Defects.* These cases usually show up shortly after the installation of a new set. If this type of trouble becomes excessive, it may be analyzed by "defect found," and may be reduced by testing and inspecting the sets for such defects in the store room before they are loaded on the installation trucks. Also, any manufacturer of telephone sets will appreciate being told about such defects so he can correct them.

(2) *Faulty Installation and Maintenance.* This is "right in the company's lap." Certainly no telephone company should permit its own men to put potential trouble in the plant; therefore, this type of trouble is fully subject to control. It should be analyzed by "type of error" so the company will know just what training to give the men. We expect to say more about this in a future article on the prevention and reduction of trouble.

(3) *Deterioration.* Telephone sets, like any other machines, will finally wear out, but they are very long lived and we have seen some very ancient specimens still giving good service. In recent years the rapid change from wall sets and desk stands to the more modern hand set and then to the further improved combined set has removed most of the old instruments from service before they have had time to deteriorate. If the set is inspected *every* time the station is visited (as should be done), most cases of deterioration will be caught before a case of reported trouble results.

Inside Wire. The most frequent cause of inside wire trouble is damage by carpenters, electricians, plumbers, furnace men, etc. However, if each case is carefully examined, it will be found in most cases that the wire could have been installed in such a way that it would not have been exposed to damage. This trouble should not be broken down by the type of workman who caused the immediate damage, but by the type of mistake that the company installer made.

Protectors. Most of the trouble should be and is "normal operation" and this trouble does not often require analysis. Protectors are *intended* to operate in order to protect more expensive equipment, but unfortunately this operation often leaves a case of trouble in the protector itself. Some protectors are advertised as self-clearing, but while some makes may be better than others in this respect, none are 100 per cent self clearing.

There is also such a thing as useless or too frequent operation. At one time

(Please turn to page 40)

A Peculiar Case of Trouble

By L. N. Martin

SOME years ago I encountered a case of trouble which must be very rare as I have not seen it duplicated in some 43 years of telephone experience, nor have I heard of another case like it.

An individual line to a wholesale house was reported "Receiver off hook." The testman found the line "short" and he could hear voices and other sounds quite clearly. The howler brought no response so a repairman was sent to the station.

The repairman found the telephone in the small office of the wholesale firm, and the receiver was *not* off the hook. He listened to the line from the telephone and heard several voices and the sound of a hand truck being pushed across the floor (sounds typical of a wareroom). His natural conclusion was that someone had installed an unauthorized extension in the wareroom.

He carefully followed the inside wire back to the protector, looking for signs of wire tapping, but found none. The protector was mounted on a wooden wall in a large wareroom where several men were working, and he had to get a ladder to reach it. Still no sign of wire tapping. He listened across the protector with his test set and definitely identified the sounds as coming from within the room where the protector was located. He followed the drop wire to the terminal and found no taps. When he opened the line at the terminal, the testman found it clear and, when it was reconnected, the sounds continued. He then returned to the protector to make a more careful inspection and from force of habit he removed the carbon blocks. Finding them badly smoked, he cleaned them. When he again listened at the protector, the line was clear. The testman came in on the line and pronounced it clear.

The final conclusion was that the carbon blocks had accidentally formed the equivalent of a transmitter button, and the board wall on which the protector was mounted formed a gigantic diaphragm which picked up every sound in the large room. But the testman said: "If the carbons were smoked, why did I not pick up a ground?" A further inspection disclosed an open ground wire.

XUM

telephony's *SAFETY* bulletins

No. 28—THE NEW YEAR IS A SAFETY CHALLENGE. The New Year is filled with many challenges. Read this bulletin for ideas on how your safety program can be analyzed and geared to the needs of the months to come.

by FRANK E. LEE

A NEW year is underway. There are new things to do and many new plans to be made.

One of the good things about a new year is that we all have a new target on which our sights can be set. This is true in the construction branch of the telephone business. It's true for those who maintain the telephone plant. Yes, and it's true for the safety program, too.

All by itself the new year isn't any better or any worse than was the old one. It's up to you to keep it as safe or to make it safer. However, when planning your safety program for the new year, there's a lot to be gained by looking back at the old year.

First of all, what was the cause of accidents in your company last year? How does this compare with the record of other years? A careful analysis here may point out some specific safety training needs for the new year.

What can be done to kindle interest in the safety program? If your present program is vibrant and living, your challenge is to maintain interest. A difficult pitfall to avoid is to rest on a good idea until it dies of inertia. The best program will center around new ways to put across the safe way of doing every job.

What kind of an example are you setting? One lineman with an eye to the safe way to do a job can influence an entire line gang. The reverse is also true. A good appraisal here may uncover ways in which everyone can help build a no-accident new year.

How often are on-the-job safety conferences held in your company? On-the-job safety discussions serve a dual purpose. First, they provide instruction on an immediate safety problem. Second, they emphasize the fact that on any job there is always time for safety. Such on-the-job safety discussions may be the answer to how renewed interest can be injected into your safety program.

Effective bulletin board treatment is another spot to check in a survey of the over-all safety program for the coming year. An occasional dramatic or theatrical touch in a display will increase reader interest in the various bulletins or posters which are used during the year.

Yes, the sands have run out on the old year. The new year is still young, and there are lots of things waiting to be done. When you are planning for the year ahead, check your safety program. Take stock of last year's record—

then work for improvement all the way down the line.

Remember—YOU HAVE TIME FOR SAFETY!

* * * *

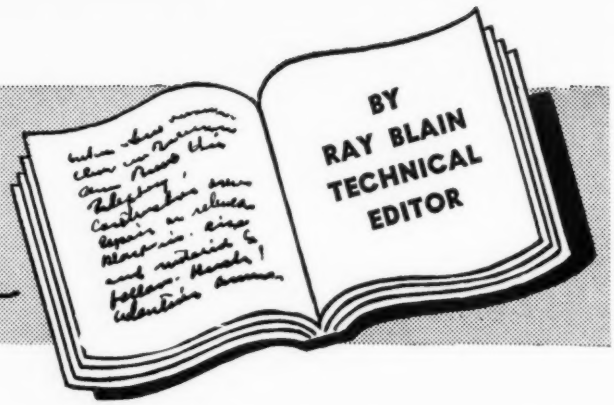
[EDITOR'S NOTE: The editor is pleased to report that more and more operating companies are adopting TELEPHONY's safety slogan, "YOU HAVE TIME FOR SAFETY." This slogan is concise and packed full of meaning. It is hoped that during this year more and more of our friends in the industry will get behind this safety program.]

"Our people are not the romancing idealists that you will find in Europe. We are an intensely practical people and not given to theories or political escapism. There is no . . . threat from the people (of the nation turning Socialist or Communist). Our only threat is from our government. And if we are able to recapture control of our Federal government by the constitutional limitation of taxes and government spending, we shall have no fear of Communism or Socialism from any source."—Herbert U. Nelson, *executive vice president, National Association of Real Estate Boards.*

• • •

"Contrary to Marx's predictions that Capitalism must inevitably lead to great privately owned monopolies and cartels and the expropriation of the mass of the people by a few powerful usurpers, American Capitalism has dispersed itself on a broader and broader base each year for the good of all. From 4,200,000 shareholders investing in 128 corporations in 1928 we have grown to more than 15,000,000 shareholders in 355 active corporations in 1950."—Reese H. Taylor, *president, Union Oil Company.*

THE PLANT MAN'S *note book*



BY RAY BLAIN TECHNICAL EDITOR

WHEN the writer moved from Washington, D. C., to Falls Church, Va., seven miles west across the Potomac, back in 1940, we were assigned the telephone number FAlls Church 2505. At that time, this community was served by a manual exchange of the Chesapeake & Potomac Telephone Co. Later, this was converted to dial, but we retained the same number.

Only recently, in order to obtain extended area dial service and to conform to the toll dialing plan, this number had to be changed to JEfferson 3-3020. Although the latter is a good number, we must admit that having one's telephone number changed after over 10 years gives him a feeling not unlike that of losing an old friend. Not only that, but, in addition, it will be necessary to have some new stationery printed!

• • •

It has been said: "He who stops being better, stops being good."

• • •

Modern high schools in many sections of the country are presently instructing both girl and boy students in the mechanics and operation of automobiles. This is indeed commendable and there is no doubt that much good will result.

It seems a pity though that a similar course is not conducted in telephony in order that a greater number of the younger generation will be able to obtain better service by utilizing available facilities to best advantage.

• • •

Lt. Col. J. J. McGovern, Signal Corps, presently on leave from Bell of Pennsylvania, in Pittsburgh, and on active duty with the Plant Engineering Agency in Washington, D. C., is responsible for this one.

The telephone system in a small town was being rebuilt. The local manager, looking over the job on Main Street, complained that the poles lying beside the holes ready to be set were too crooked and said he would not permit their use in his village. He insisted that straight poles should be used at least on Main Street.

The old line foreman spit out his chew of tobacco and patiently explained to the manager that he had nothing to worry about as they had a pole straightener and that the poles would all be straightened before they were set. Sure enough a few days later, when the manager again visited the job, the poles were all set and looked fine. The manager complimented the foreman on the excellent job of pole straightening. He never knew that poles always look straighter after they are set than they do when lying on the ground, and that a pole straightener has never been built.

• • •

Technical ability is important, but actually it accounts for less than 20 per cent of the average telephone engineer's success; more than 80 per cent is due to the development of one's personal qualities such as initiative, concentration, decision, adaptability, organizing ability, observation, industry and leadership.

• • •

The writer was recently privileged to inspect a manual telephone system of five positions, main frame power equipment and test desk installed in a freight-type trailer. This mobile exchange, we are advised, has been used to advantage for several years to provide telephone service in connection with temporary activities and disasters.

It would appear that exchanges of this type could very well be provided at various points throughout the country in order that they could be made quickly available in event of emergency.

• • •

It has been said: "A true friend is one who knows you are no good and then forgets it."

• • •

After having enjoyed demonstrations of two laboratory models of electronic switching systems during the past year we have been extremely interested in this type of equipment.

In our estimation, such an arrangement should become practical within about 10 years. Recently, however, we have been advised that because of great progress in the development in recent months, the waiting period may be considerably reduced; it would not be surprising if a practical electronic system were made available within a few years.

We sincerely hope this prediction comes true.

• • •

A recently developed device for use by lecturers, called a "Lecturn," consists of a self-contained and easily moved cabinet that is equipped with microphones, amplifiers and loud speakers. A single power cord is the only external connection required.

This device is also equipped with a lapel microphone in addition to the main microphone. This unit permits the speaker to turn his head or walk away to use a blackboard. The top of the cabinet forms a reading desk which is equipped with an 18-inch fluorescent light.

A record player and recorder may be added as well as external loudspeakers for overflow audiences.

Did You Know That . . .

Equipment for a 10,000-line crossbar dial telephone central office weighs more than most freight locomotives — actually some 500 tons.

To produce it requires almost 200,000 man-hours of work; to install it in the building takes about 60,000 man-hours. If a hundred people worked eight hours a day, seven days a week, it would take nearly a year to finish the job.

XUM

GET YOUR COPY OF THIS NEW TELEPHONE WIRE BULLETIN

FREE

Here is the revised 1952 edition of the valuable Whitney Blake Telephone Wire Bulletin. It tells the complete story of the construction of the Whitney Blake line of telephone wires. It shows pictorially the laboratory control in telephone wire production and the manufacture of plastic telephone wire. In addition it contains complete catalog information on WB Telephone Wire Products. Bulletin T-2 is available to telephone men everywhere without charge. Send for your copy today.

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Please send a copy of TELEPHONE WIRE BULLETIN T-2 to

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PLANT MAN'S QUIZ

Q. What precautions may be taken to prevent the telephone-using public from marring, marking and carving the walls of public telephone booths?

A. We believe that the present-day manufacturers have so designed their modern booths as to prevent the difficulties you have mentioned. Many of these booths are lined with metal or a hard, smooth plastic that will withstand the scribbling and scratching of a "doodling" public. This surface is also easily cleaned and proves to be most sanitary.

• • •

Q. We would like to know whether it is necessary to bond all cables together in the central office cable vault of an underground cable distribution system?

A. Yes. It is not only necessary to bond all underground cables in the central office cable vault, but, in addition, they should be connected to the office ground. This bonding should be done near the cable entrance end of the vault, usually at the second vertical upright of the cable rack.

The steel cable rack and the bonding ribbon should be bonded together.

The connection to the office ground should be made by means of No. 6 copper wire.

• • •

Q. Please advise what type of emergency light is considered satisfactory for use of linemen in clearing trouble at night.

A. It is common practice at the present time to mount spot lights on top of the cab on trouble cars and trucks. This spot light can be tilted so as to throw a beam of light on the line when locating and clearing trouble.

Also, there is a battery-operated flash light that may be worn on the head of the lineman so that both hands can be free while working on a pole at night. The batteries used to power this light are mounted in a case and may be clamped on the lineman's belt.

• • •

Q. Will you please explain what type of a wire wrap should be used to attach a stub to a pole employed to reinforce an old pole in an open wire line?

A. We suggest that you make use of regular sleeve nuts and reinforcement bands which can be obtained from your telephone supply house and which are especially designed for this purpose.

These bands are convenient to install and do a much better job than is possible with a wire wrap.

• • •

Q. We are wondering whether it will be possible to connect a loud speaker intercommunicating system through our exchange cables without causing cross talk?

A. The zero level system of this type may be connected through telephone cables without causing interference. The high level system cannot and special lines outside the cables should be provided for this type of service.

• • •

Q. Please advise what type of test connectors can be used on an open wire rural line so that it may be opened for test.

A. We would not recommend the use of test connectors in rural lines as they prove to be a potential source of trouble. Modern testing instruments are available which, in our opinion, make the opening of a line for testing unnecessary.

• • •

Q. Because of the shortage of cable capacity in our exchange we have decided to eliminate battery and generator loops from our main exchange to several PBX systems and provide local power at each location. We shall appreciate your advice as to how this may be best accomplished.

A. This may be accomplished satisfactorily by various methods.

The method most commonly employed is to float a small storage battery at the PBX from a small automatically controlled rectifier. With this arrangement, when the load current demand is less than the rectifier rating, it supplies all current required on the system and at the same time delivers a small trickle charge of the correct amount to compensate for the internal battery losses and to prevent destructive chemical action.

However, if the current demand of the PBX system exceeds the rating of the rectifier during peak loads, the excess is supplied by the storage battery. Then, when the load drops back to a value below the rectifier rating, its output remains at its rated value. The difference between the rectifier rating and the load current is thus supplied to the battery until it is fully charged. The principal cause of failure of storage batteries to reach their maximum life expectancy is due to the under-charging and over-charging that results from the use of non-automatic battery chargers for PBX service.

Battery eliminators also provide a desirable method of obtaining direct current telephone power directly from an alternating current source of power.

However, if continuous telephone service is required on the PBX, it will be necessary also to provide either dry cell or storage battery standby power. This feature is provided by adding a relay to the battery eliminator, which automatically disconnects it from the telephone system and connects the reserve battery in the event of a failure of the commercial power supply. When the commercial power is restored, the battery eliminator is automatically switched back into service and the battery disconnected.

Ringing power can be supplied by either a battery-operated converter or one powered from the 60 cycle a.c. mains. Usually, emergency ringing power can be furnished by a hand generator mounted on the PBX switchboard.

A Close Call for The Free Press

"It came as news to us that the administration was within an inch of getting a throttling hold on the finances of a free press during the closing minutes of the last session of Congress. The legislative clause in question was contained in Senate 2170; it would have given the administration's price-control czar full authority over the size and allocation of the advertising budgets of private industry. This authority would have permitted the administration to decide what constitutes 'reasonable' advertising expenses and to exclude from the 'cost of sales' any outlay deemed 'unreasonable.' The proposed legislation, tucked in an 'amendment' to an amendment, passed an absent-minded Senate by a 49 to 21 vote. It would have passed in the House of Representatives if John E. Lyle Jr., of Corpus Christi, Tex., hadn't spotted the danger in the legislation to the whole concept of free speech. Lyle, it seems to us, deserves an editorial garland in every newspaper and magazine in the land."

—*Freeman* Magazine.

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Courts and Commissions

Pennsylvania Independent Gets OK to Raise Paystation Rate

Pennsylvania Public Utility Commission on Feb. 5 authorized the Commonwealth Telephone Co., Dallas, Pa., to increase its public paystation rate from a nickel to 10 cents, effective Feb. 11.

Commonwealth is the second Independent telephone company in Pennsylvania to get permission to raise the paystation rate to 10 cents. The first was Citizens Telephone Co., Kecksburg.

The commission also approved an increase in Commonwealth's monthly rate for extension telephones from 75 cents to $1.00.

At the same time the company will make a one-third reduction in its rates to charitable institutions and clergymen. It will eliminate a 25-cent-a-month charge for handset telephones.

V V

North State Company Files For Increase in North Carolina

North State Telephone Co., High Point, N. C., on Feb. 6 asked North Carolina Utilities Commission for permission to increase its rates by approximately $175,000 a year to meet "greatly increased costs of labor and materials" and "the extremely high federal income tax, now taking more than half the company's net income."

The company, which operates exchanges at High Point, Thomasville and Randleman, and serves the surrounding rural areas, said that after state and federal income taxes are paid on the increase requested the company will realize only about $91,000.

In its application, it declared that it has spent about 2 million dollars since 1945 on expanding its facilities and that it has increased the number of telephones in operation from 9,639 to 20,540.

In 1951 alone the company spent $600,000 and plans further expansion amounting to $750,000, according to Robbins Tilden, secretary-treasurer, from proceeds of a $750,000 loan approved by the commission to be obtained from Kidder, Peabody & Co. of New York in the form of 25-year notes at 3.5 per cent interest.

Tilden said the company now has 2,200 active applicants awaiting telephone installations, and that expansion of the central exchange space, extensive remodeling of the building at High Point, and this phase of the construction program is expected to cost $100,000 and is expected to take care of exchange requirements for the next 20 years.

V V

New Rates in Oklahoma After Modernization Completed

Southwestern Associated Telephone Co. has been granted the following rates at Buffalo, Okla., effective on the first billing date following conversion from magneto to common battery operation.

One-party business	$5.75
Two-party business	4.75
One-party residence	3.25
Two-party residence	3.00
Four-party residence	2.50
Rural multi-party (grounded)	
business	3.00
residence	1.75
Rural eight-party residence (metallic)	2.50

When handset service is furnished, 25 cents per month may be added to these rates.

V V

Territory Invasion Hearings Begin for Two Ohio Companies

Ohio Public Utilities Commission on Feb. 4 began hearings into Elida Mutual Telephone Co.'s complaint that Lima Telephone & Telegraph Co. had invaded its territory.

The Lima company contends that the Ohio commission granted it permission to operate in this territory in 1929. However, the Elida company told the commission that it wants to serve the questioned territory exclusively.

V V

Buys Mustang (Okla.) Exchange

Otis Mayfield has purchased the Mustang (Okla.) Telephone Co. from John Silver. Mayfield has been operating an exchange at Kellyville, Okla.

Bell Companies Seek Rehearing Of "Unlawful Purpose" Ruling

Chesapeake & Potomac Telephone Co. and American Telephone & Telegraph Co. on Jan. 18 filed a petition for rehearing of a decision rendered by the Federal Communications Commission (FCC) on Dec. 21, which stated that a telephone company may cut off a telephone if it believes it is being used for unlawful purposes, but it must stand responsible for its action (TELEPHONY, Jan. 5, pp. 13 and 26).

FCC had found unjust a provision of the above companies' tariffs which said that service would not be furnished if any law enforcement agency advised, or if the company received other evidence, that such service was being, or would be, used in violation of the law. FCC found it unreasonable that the companies believed the inclusion of this provision absolved them of liability. The telephone company must use its own judgment in each case and cannot be immunized from civil or criminal liability in event of a mistaken decision, the FCC ruled.

The FCC acted on a complaint filed in 1949 by Harry and Bertha Katz of Washington, D. C., when a U. S. attorney sought to have their, and other, telephones removed in a battle against District gambling. The two challenged the attorney's right to request removal and the request was later withdrawn.

In the petition for rehearing, the C&P and AT&T companies pointed out the dilemma they would face if the decision stands unchanged. Under the FCC's ruling, the companies stated that "the common carrier may on the one hand be liable to criminal prosecution for aiding and abetting the commission of a crime if it continues to furnish service; and on the other hand it may be held civilly liable in damages if it discontinues service (and that) it should be remembered that the resulting expense will ultimately fall upon the legitimate users of the service."

If FCC continues to object to the present civil and criminal immunity tariff provisions, the companies then

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RCR-2013A RCR-2016A	11/12 11/12	12.0 24.0	115 or 230 volts, 50 or 60 cycles, 1-phase	Electronic
RCR-1068B RCR-1069D RCR-1070D	22/24 22/24 22/24	1.0 3.0 6.0	115 volts, 60 cycle, 1-phase	Magnetic
RCR-2016B	22/24	12.0	115 or 230 volts, 50 or 60 cycles 1-phase	Electronic
RCR-3525 RCR-3550 RCR-35100	22/24 22/24 22/24	25.0 50.0 100.0	208 or 220 volts, 50 or 60 cycles 3-phase	Magnetic Amplifier

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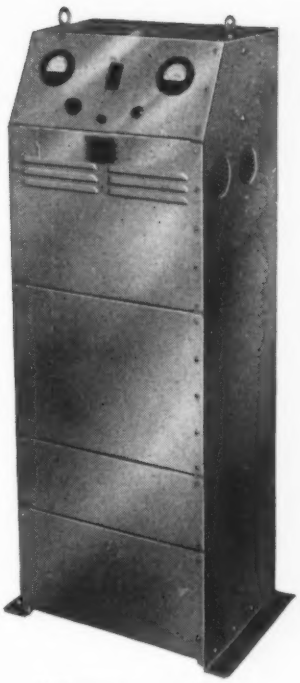

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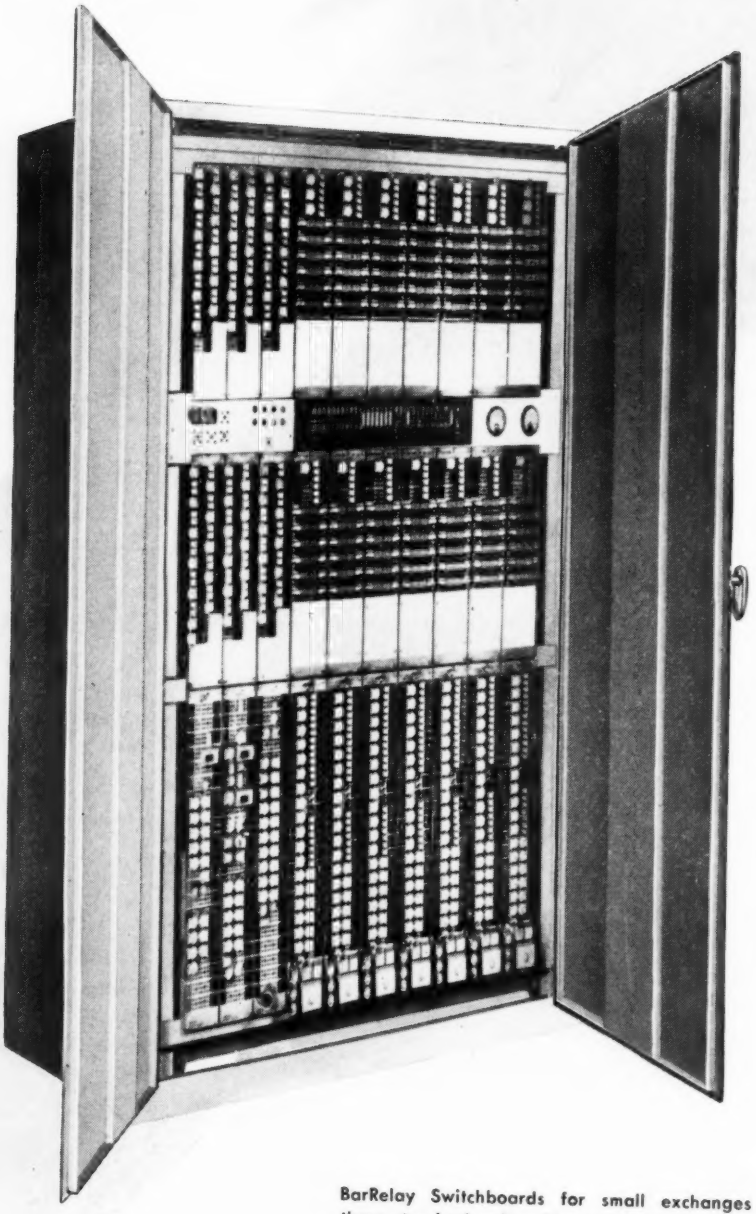

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60 (Illustrated)	7	10
100	10	10

Any unit may be supplied partially equipped in multiples of ten lines, with links as needed, and may be readily expanded as required up to full capacity—or beyond, by the addition of auxiliary units.

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—to install
—to expand
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BarRelay is your board! It offers the advantages of low first cost, ease and economy of expansion, long life, and minimum maintenance.

Developed by Automatic Electric on time-tried relay switching principles, the BarRelay Switchboard uses long-life Automatic Electric relays, with high pressure twin contacts of precious metal, self-protecting coils, and permanent soldered connections throughout. These are features which assure continued economy throughout BarRelay's long life.

Because it's built to *last*, the BarRelay Switchboard is also built to *grow!* Standard small exchange units, partially equipped, can be quickly and easily expanded to full capacity by the addition of ready-wired, factory-assembled components, consisting of line relay plates, and link plates using pre-skinned strap wiring to provide permanent trouble-free soldered connections to the BarRelays.*

With all these features, BarRelay equipment is most attractively priced. We shall be glad to submit complete facts and figures applying to your small exchange.

***ECONOMY OF EXPANSION** is an important feature of BarRelay equipment. To exemplify this economy, Automatic Electric is prepared to undertake the installation of additions to BarRelay switchboards, in 10-line units with needed links, up to full frame capacity, at a charge for installation labor of $10.00 per line, based on current rates.

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ask approval of a regulation substantially in the following terms:

"The service is furnished subject to the condition that it will not be used for an unlawful purpose, and that the telephone company will refuse or discontinue service where it has probable cause to believe that such service is being, or will be, used in violation of law.

"Advice from a law enforcement agency, acting within its jurisdiction, that such service is being, or will be, so used shall constitute probable cause within the meaning of this regulation; but provided that, before acting upon such advice, the telephone company shall have given the subscriber reasonable advance notice of its proposed action, unless the circumstances require acting without notice.

"The subscriber's right to secure a determination by a court or commission that service should be furnished or restored shall not be prejudiced by this regulation or any action of the telepone company under it."

V V

Commission to Review Refund Order in Wisconsin

Wisconsin Public Service Commission on Jan. 24 held up its order to Wisconsin Telephone Co. to refund $489,853 to customers in Milwaukee and 14 other communities (TELEPHONY, Dec. 22, p. 28).

The order was issued on Mar. 6, 1951 because the commission found that the profit of the company had exceeded 7 per cent of the firm's plant investment.

The company, however, appealed the refund order and the Dane County Circuit Court ordered a review hearing by the commission. The commission said that "the time for making any refund, which may ultimately be determined," would be extended until 90 days after the review hearing.

V V

Independent's Service Deemed Inadequate; City Takes Over

The City of Faith, S. D., recently found it necessary to take steps to build a municipal telephone system to render service in that city, where West River Telephone & Electric Co., Eagle Butte, was operating and was, according to the South Dakota Public Utilities Commission, giving "wholly inadequate service."

On Jan. 23, the City of Faith was issued a certificate of public convenience and necessity by the South Dakota commission for construction of a telephone system. Prior to that time, the West River company, owned by Henry F. Harding, had failed for three years to give formal notice to the City of Faith that the company would accept a new 20-year franchise, approved in a city-wide election, to operate in the city, "although the matter was called to his (Harding's) attention."

On Sept. 21, 1951, in an action pending in the Circuit Court of Meade County, S. D., in which Harding was plaintiff and the City of Faith, defendant, the court judged that West River Telephone & Electric Co. had no existing franchise for the operation of telephone lines within Faith; that the West River company should continue to furnish telephone service in the usual manner for a period of 90 days from and after the service on Harding of the Notice of Entry of Judgment, and that upon the expiration of the 90-day period Harding should promptly commence the removal of all of his telephone equipment and attachments from the streets and alleys of Faith.

The judgment, beginning the 90-day period for Harding to continue service, entered by the City of Faith on Dec. 14, 1951, was followed by an appeal from the notice, filed by Harding. Nevertheless the commission, in considering the city's application for a certificate, decided that even though the appeal be successful, Harding could "at any time dismiss the appeal and forthwith denude the City of Faith of any telephone service." This situation was deemed by the commission as not to constitute reasonably adequate service by Harding, thus opening the way for the City of Faith to construct its own telephone system.

The real root of the trouble seems to stem from a number of grievances of Faith residents listed in the commission's order granting the city a certificate of convenience and necessity. For instance, in early 1950, the city

1952 CONVENTIONS

Louisiana Telephone Association, Francis Hotel, Monroe, Feb. 22 and 23.

Kentucky Independent Telephone Association, Phoenix Hotel, Lexington, Mar. 4.

Texas Telephone Association, Gunter Hotel, San Antonio, Mar. 10, 11 and 12.

Nebraska Telephone Association, Paxton Hotel, Omaha, Mar. 25 and 26.

Iowa Independent Telephone Association, Fort Des Moines Hotel, Des Moines, Apr. 8 and 9.

Illinois Telephone Association, Hotel Abraham Lincoln, Springfield, Apr. 17 and 18.

Ohio Independent Telephone Association, Deshler-Wallick Hotel, Columbus, Apr. 21, 22 and 23.

Pennsylvania Independent Telephone Association, Bedford Springs Hotel, Bedford, Apr. 28, 29 and 30.

United States Independent Telephone Association Executives Conference, Broadmoor Hotel, Colorado Springs, Colo., May 8 and 9.

Wisconsin State Telephone Association, Park Hotel, Madison, May 14 and 15.

Kansas-Missouri Telephone Associations (joint convention), Town House, Kansas City, Kan., May 19, 20 and 21.

New York State Telephone Association, Mark Twain Hotel, Elmira, May 21 and 22.

North Dakota Telephone Association, Clarence Parker Hotel, Minot, June 2 and 3.

Indiana Telephone Association, Claypool Hotel, Indianapolis, June 4 and 5.

California Independent Telephone Association, Biltmore Hotel, Los Angeles, June 19 and 20.

Washington-Oregon Independent Telephone Associations (joint convention), Davenport Hotel, Spokane, Wash., June 23 and 24.

Michigan Independent Telephone Association, Olds Hotel, Lansing, Sept. 12.

Tennessee Telephone Association, Hotel Hermitage, Nashville, Sept. 17 and 18.

Rocky Mountain Telephone Association, Newhouse Hotel, Salt Lake City, Utah, Sept. 18 and 19.

United States Independent Telephone Association (annual convention), Conrad Hilton Hotel (formerly the Stevens), Chicago, Oct. 13, 14 and 15.

North Carolina Independent Telephone Association, Carolina Hotel, Pinehurst, Oct. 23 and 24.

South Carolina Independent Telephone Association, Clemson House, Clemson, Oct. 30 and 31.

Virginia Independent Telephone Association, Roanoke Hotel, Roanoke, Nov. 6 and 7.

Alabama-Mississippi Independent Telephone Association, Jefferson Davis Hotel, Montgomery, Ala., Nov. 10 and 11.

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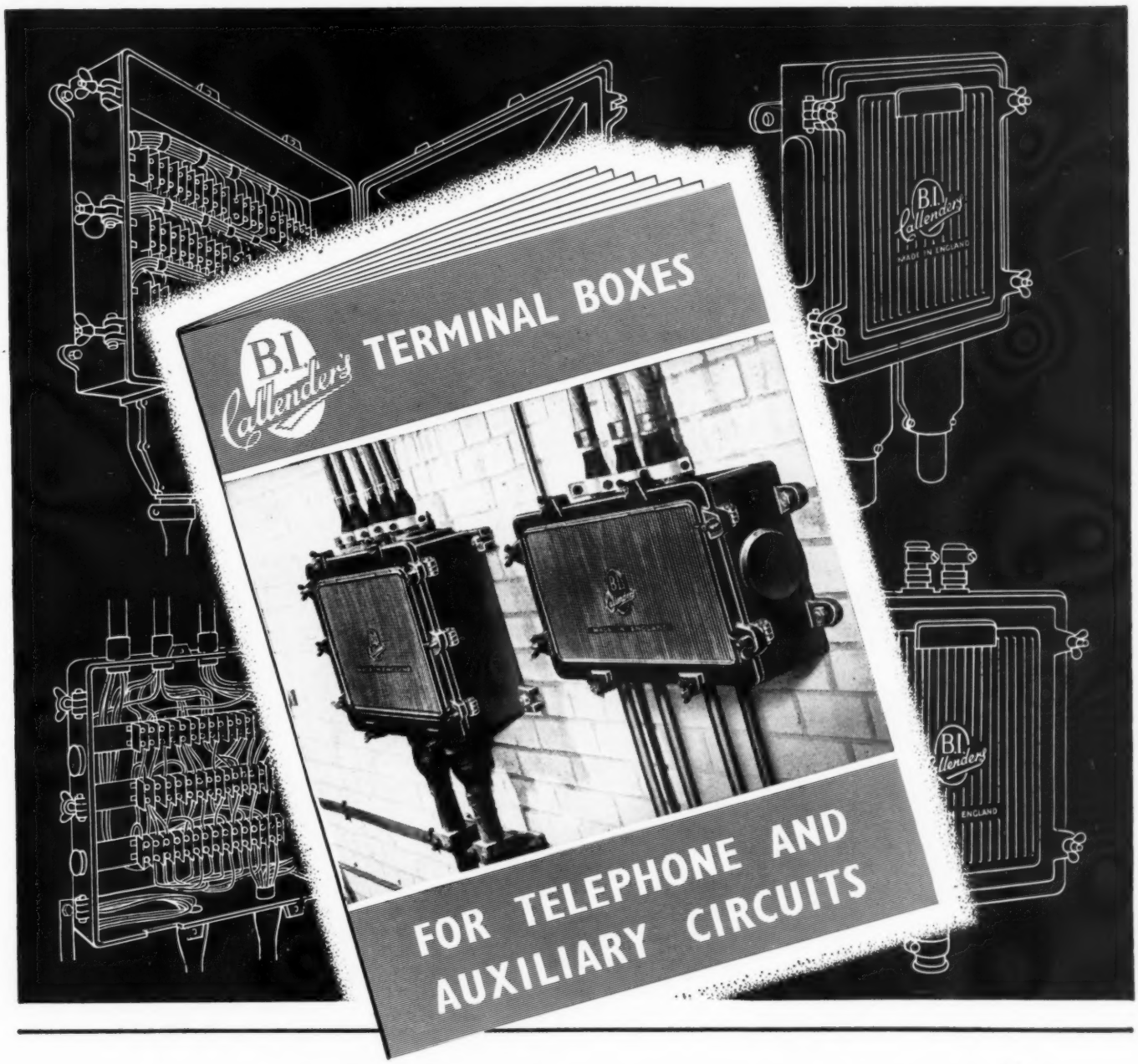

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council requested Harding to install a telephone in the office of the police chief, charges to be paid by the City of Faith. The commission stated that Harding refused to install the telephone until an appeal by him had been carried to the state supreme court. Then Harding installed the telephone, as ordered, in August, 1951, but removed it a month later. The reason, the commission says, was that "Harding claims that Chief of Police Crowley owes him a personal bill of $14 for telephone service rendered for Crowley personally during 1949 . . ."

The commission goes on to cite several instances in which Harding is reported to have demanded payment in advance for telephone service, an authority not granted Harding in the latest rate schedule approved in January, 1948, for use by the West River company. In one case, the only doctor in Faith or within 80 miles, was required to pay a $100 deposit. He paid the sum, but later found from the commission that deposits were not authorized by Harding's tariffs, so requested Harding to apply the deposit on his current telephone bill. Harding refused, and within two hours, disconnected the doctor's telephone service for approximately 10 days.

Harding, according to the commission, testified in his defense of these actions that "in his opinion the demands made upon patrons for an advance deposit . . . were justified (because) in each case he regarded the credit rating of the patron to be sufficiently impaired to justify such action; that his actions in declining to render service and disconnecting telephones which had been installed were all done to insure telephone tolls and charges accruing in the future. . . . Harding also stated that at a former hearing before the commission he indicated to the record therein that he was willing to adopt the terms and conditions relating to an advance deposit of money to insure collection of telephone charges contained in Northwestern Bell Telephone's tariffs." However, the commission found that no conditions of that kind were ever accepted or approved by it.

Among other conclusions, the commission found the service rendered by Harding, in the City of Faith, to be wholly inadequate, and granted the city a certificate.

V V

SW Bell Authorized to Buy Two Missouri Exchanges

Missouri Public Service Commission on Feb. 4 authorized Southwestern Bell Telephone Co. to buy the Knobnoster and Lamonte telephone exchanges from Central Missouri Telephone Co.

The commission, in authorizing the purchase, noted that tremendous expansion and improvement in the Knobnoster exchange is necessary because of re-activation of the nearby Sedalia airbase.

The Central Missouri company had said it could not pay for the expansion and Southwestern Bell said it was willing to do so.

V V

Co-op Organized in Missouri; To Seek REA Loan

Steelville Telephone Co-op, Inc., was adopted as the name of a newly formed cooperative in Steelville, Mo., following a meeting of the temporary board of directors.

B. J. Hiller, president of the board, said that 604 applications have been received for telephone service with the cooperative. A meeting was to have been held on Feb. 14 to elect the first permanent nine-member board of directors.

It is expected that the co-op will seek an REA loan.

V V

Commission Reports 47,718 Increase in N. C. Telephones

North Carolina Utilities Commission reported on Jan. 28 that the number of telephones in North Carolina increased by 47,718 in 1951, bringing the total number in the state to 602,119.

During the year, 164,377 telephones were installed, but removals reduced the net gain to 47,718. The new telephones included 17,939 in rural areas, 17,836 in urban areas and 11,943 extension telephones.

The report showed that 316,475 telephones have been installed in North Carolina since the end of 1945, when the total number in operation was 285,644. In 1950 the net gain in installations was 57,244.

Despite the increase in installations, the commission reported that approximately 50,000 applications for telephone service remain to be filled in the state.

V V

Michigan Commission Approves Increases, Service Changes

Michigan Public Service Commission recently issued the following orders:

Authority for Aurelius & Vevay Telephone Co. to increase rates at its Aurelius exchange.

Authority for Citizens Telephone Co. of Berrien County to institute new service at its Bridgman exchange.

Authority for Union Telephone Co., Owosso, to furnish a new type of telephone instrument and fix appropriate rates.

Authority for Whiteford Farmers Telephone Co. to increase rates at its Whiteford Center and Samaria exchanges.

V V

Southern Bell Gets 10% Increase in Tennessee

An emergency 10 per cent increase in its local exchange and intrastate toll rates beginning with February billing was allowed Southern Bell Telephone & Telegraph Co. by Tennessee Railroad & Public Utilities Commission in a decision on Jan. 31. The increase is in the nature of a surcharge to be effective until Sept. 1, 1953, unless otherwise ordered. The commission took this action without establishing a rate base or indicating what constitutes a fair rate of return.

With 581,000 subscribers in Tennessee, Southern Bell sought an increase in revenue of $6,550,120 in order to meet increased wage payments of $1,800,000, increased taxes of $2,158,000, together with other increased costs in

Our Secretary, Miss Jones
By Nadine Hall
Has my magazine come this month, Miss Jones?
What do you think of these jokes I put in my speech, Miss Jones?
My Dictaphone seems to be broken, Miss Jones!
We really got out a lot of work last night, Miss Jones. We should work more in the evenings.
Are you ready now for dictation, Miss Jones?
Er—in case my wife calls, Miss Jones, you might mention that I worked last night.
Would you mind doing a little more copy work, Miss Jones?
Do you like candy, Miss Jones?
Miss Jones, did you make those three extra copies I asked for?
Are you busy, Miss Jones?
Miss Jones, do you know where my cigars are?
Miss Jones, would you mind working a little overtime tonight?
Make that 10 copies instead of eight, will you, Miss Jones?
I hope you haven't typed that 20-page report yet, Miss Jones. We won't need it.
Are you unhappy about something, Miss Jones?
What did you want to see me about, Miss Jones?
"I would have called you earlier, but Miss Jones just gave me your message!"
You may take the rest of the day off, Miss Jones!

—Courtesy of Westinghouse News

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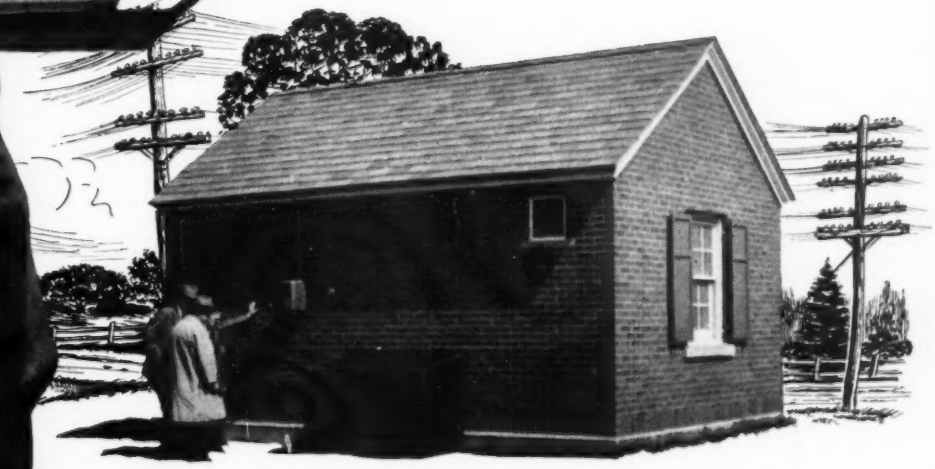

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amounts unspecified in the commission's decision. The commission stated that prices of materials and supplies had substantially increased since May, 1950, when the present rates were fixed, and that the cost of obtaining capital had also increased.

The regulatory body said that the revised NARUC Separations Manual, while not perfect, makes a reasonable approach to the separations problem and, moreover, that a need exists in the country as a whole for uniformity in separations formulae. Application of the formula to Tennessee results in reducing intrastate plant and increasing interstate plant between $375,000 and $440,000.

The increase in rates is not to be applicable to switched stations, nor to stations served by magneto exchanges.

The Commission also permitted the paystation rate to be increased from five to 10 cents.

V V

Terms Recording Number of Telephone Calls Unfeasible

"Financially impracticable" is the gist of a report made recently by the Massachusetts Department of Public Utilities (DPU) on a proposal that subscribers' telephones be equipped with devices to record the number of outgoing calls at the expense of telephone companies operating in the state. Except for a few operated by connecting companies, telephones in Massachusetts are operated by New England Telephone & Telegraph Co.

The Massachusetts legislature had passed a resolve (under Chapt. 42) for an investigation and report on the estimated cost of such installations. The intent was to require the installation to be completed within a year, according to House Bill 305 introduced at the 1951 session of the legislature. The bill required that "every telephone for which service is rendered by a telephone company shall have incorporated in it or have attached thereto a device or meter to record and register the number of outgoing calls made."

The bill also provided for a biennial test and maintenance of each device at the telephone company's expense, with a fine of $100 per telephone for failure to make the installation and a penalty of $1.00 per day per unit for delayed maintenance. Automatic operation of the devices was specified.

The DPU report, which was filed as House Bill 1960, says that such registers would have to be electrically operated over a third wire to each subscriber's telephone. The report brings out that this third-wire operation would be feasible only on one and two-party lines. On a two-party line the third-wire operation would mean the use of four wires—two for the line and one additional wire to operate a message register at each subscriber's premises.

The requirements of the bill (House 305) could not be accomplished by automatic operation on four and eight-party lines, according to the DPU report. Aside from considerations of the mechanical impossibility of automatic registration of calls on these multi-party lines, the report states there is no need for recording devices on four and eight-party lines because service on them is charged for on a flat-rate basis.

In manually operated central offices equipped with message registers, the registers are operated by the operator depressing a key in the cord circuit in use on the particular call involved; this is done only on one-party lines. This key transmits the register-operating pulse over the sleeve conductor to the line circuit over which the call is originated. As the sleeve conductor is already used to provide supervision and the busy test, it could not accommodate the added function of distinguishing between two registers on a two-party line. Thus to operate message registers at subscribers' stations on a two-party line a fourth wire would be required in each line and cord in the switchboard. This in turn would require the use of double plugs (each plug handling two wires) and the complete replacement of switchboards to permit the use of such plugs.

In recognition of this situation, the DPU report simply points out that switchboards in central offices of the manually operated type are not adapted to the installation of a fourth wire. Replacement of central office equipment to accommodate double plugs would mean astronomical costs, the report notes.

The DPU report included a tabulation of estimated investment to provide the automatic recording devices at subscribers' stations (under the three-wire plan) only in central office areas and only on lines which are now provided with central office registers.

The DPU points out that a decision of the Massachusetts Supreme Judicial Court in 1951 allows a minimum net return of 6.23 per cent on an intrastate rate base of $244,185,500. "Therefore," the DPU report says, "the state has no constitutional power to compel the telephone companies to absorb this large expense to the detriment of their earnings. If future legislation requires the companies to comply, it can be emphatically stated that five years would be required to do the work if the necessary materials were available. Materials are not at present available for the companies' held orders and regrades (of service).

"The Department, through its telephone and telegraph division, is staffed by trained personnel whose duty includes causing to be tested the equipment associated with customers' registration located at the companies' central offices. These tests are conducted regularly and insure that meters register accurately."

V V

Commission OK's NW Bell $4,933,000 Minnesota Raise

Minnesota Railroad & Warehouse Commission on Feb. 1 granted Northwestern Bell Telephone Co. permission to raise its rates.

The commission majority, Clifford C. Peterson, chairman, and Ewald Lund signed the order. Leonard E. Lindquist, third commissioner, dissented, saying the increase was too steep.

The total annual increase is estimated at $4,933,000—about 63 per cent of the $7,805,484 increase requested by the company.

E. Hornsby Wasson, vice president and general manager of Northwestern Bell, protested that the approved increases "will not cover recent increases in wages, material prices and other costs of furnishing telephone service."

Commissioners Peterson and Lund pointed out that almost 57 per cent of the increase will be paid in taxes, leaving an increase in net income to the company of only $2,124,128.

The commission estimated that net income would produce a rate of return of 6 to 6¼ per cent; the company had asked for 7½ per cent.

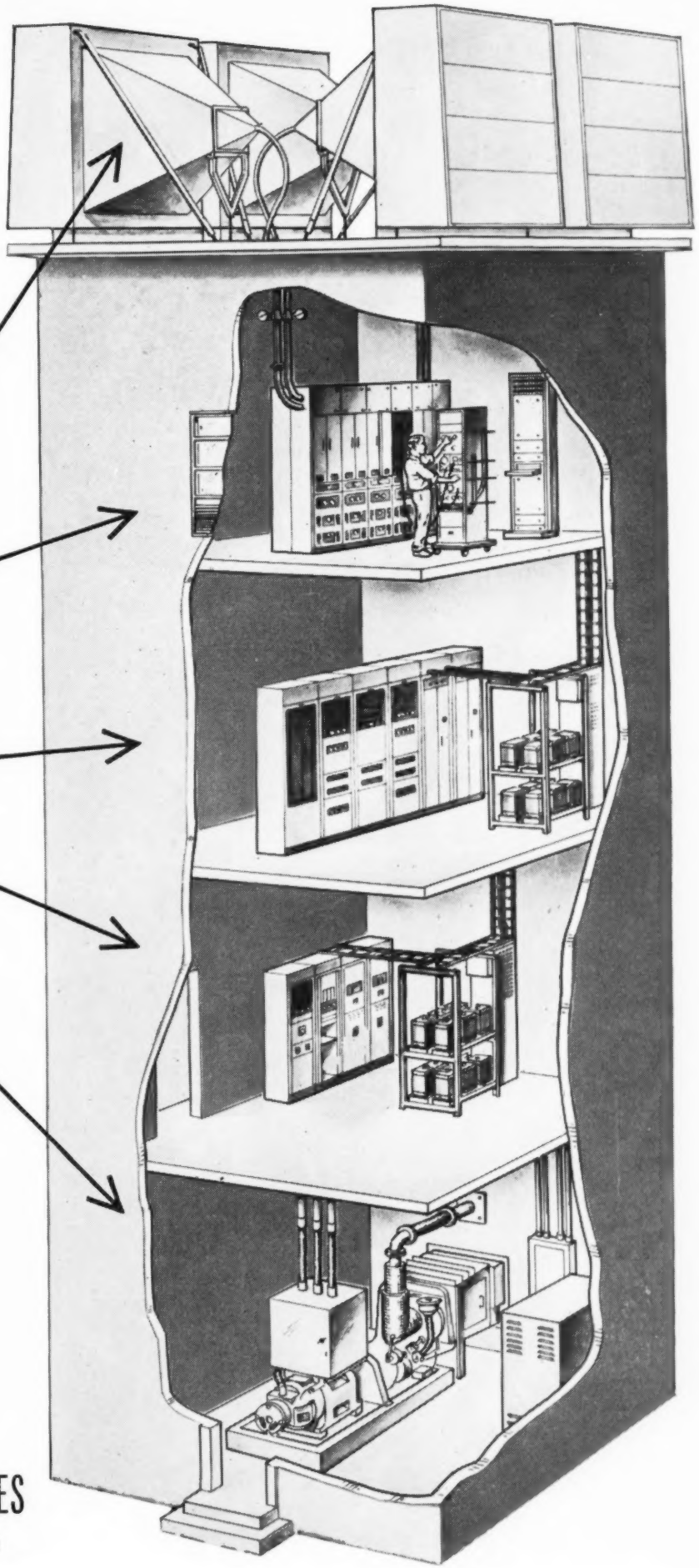
Revised NARUC separations formula which the commission approved as fair and reasonable resulted in a transfer from intrastate to interstate service of $851,250 investment and $202,000 of expenses, and reduced the revenue required in Minnesota intrastate operations by $370,000. Fair value of the properties used in intrastate service was fixed by the commission at $102,-950,000. The average investment per telephone in 1941 was $197, while the investment for each new telephone added in 1950 was $393. Minnesota property additions since the war have totaled 100 million dollars. Construction planned for the next few years will cost an additional 80 million dollars.

The last rate increase by Northwestern Bell in Minnesota was in February, 1950.

XUM

What's inside a *Radio-Relay* station?

Because microwaves travel in straight lines and the earth is round, there are 123 stations on the transcontinental television route between Boston and Los Angeles. This view of a typical unattended station shows the arrangement of the apparatus which amplifies the signal and sends it on.



ON THE ROOF are the lens antennas, each with its horn tapering into a waveguide which leads down to equipment

ON THE TOP FLOOR, where the signal is amplified, changed to a different carrier-channel and sent back to another antenna on the roof. Here are testing and switching facilities. Normally unattended, the station is visited periodically for maintenance.

ON THE THIRD FLOOR are the plate voltage power supplies for several score electron tubes.

ON THE SECOND FLOOR are filament power supplies. Storage batteries on both floors will operate the station in an emergency for several hours, but

ON THE GROUND FLOOR is an engine-driven generator which starts on anything more than a brief power failure.

Anything that happens—even an opened door — is reported to the nearest attended station instantly.

Coast-to-coast *Radio-Relay* shows again how scientists at Bell Telephone Laboratories help your telephone service to grow steadily in value to you and to the nation.

BELL TELEPHONE LABORATORIES

Improving telephone service for America provides careers for creative men in scientific and technical fields.

India Director Studies American Telephone System

THE vast sub-continent of India, seeking to modernize and expand its telecommunications facilities and operations, availed itself of United Nations' assistance recently by sending to this country Ramchandra Vaish, deputy director of Posts and Telegraphs, whose headquarters are at New Delhi. Here under a United Nations fellowship in economic development, which provides technical assistance to India, Vaish visited Associated Telephone Company, Ltd., Santa Monica, Cal., from Dec. 10 to 14.

Prior to that time, and since his arrival in the United States on Nov. 1, his tour of study had taken him to the offices of the Federal Communications Commission in Washington, D. C., American Telephone & Telegraph Co. and International Telephone & Telegraph Co. and some of their subsidiaries, Western Union Telegraph Co. and Copperweld Steel International Co. His visit is part of a six-months study of British and American telephone systems.

Confronted with a demand for a 100 per cent increase in telephone service, lack of money to develop the present system rapidly, and lack of trained help to install and operate an adequately expanded system, Vaish was particularly interested in finding the answers to his problems in American methods and practices.

In all of India there are only about 200,000 telephones, or approximately two telephones per 100 families, as compared with the 80 telephones per family in the United States, he said. There is a known demand for at least twice the number of telephones now in operation, and, if service were readily available, it is probable that there would be many additional service applications.

Vaish conferred with President Edwin M. Blakeslee and staff members of the Associated company. He was particularly interested in construction, organization, management, operation and maintenance of the company's system; utilization of modern machinery and techniques; progressive recruitment and training practices, and financing, engineering and budgeting methods. Demonstrations of the cable splicing machine, cable spinner and pole setting equipment, and other mechanized aids to construction were amazing to him in the rapidity with which they accomplished construction of plant. He believed that mechanization might have some immediate application in the Indian plant, if such equipment could be acquired. He also studied traffic techniques, such as handling short and long haul calls, on the Associated company's West Los Angeles switchboard, automatic toll ticketing, etc.

Electronic testing used by the Associated company to locate line faults also interested Vaish, who told of the "strong back" method now in use in India. There a man may have to travel 30 miles or more by train to get near where he thinks the fault may be. From there on he walks the line sections, climbing poles until he finds the fault. He also was interested in the use of classified telephone directories in America. Some advertising is scattered through the directories in India, he said, but not on an organized basis, and there is no section for classification.

Vaish believed that a partial solution for India's immediate problems of expansion would be the use of four-party lines with dial equipment.

When India's step-by-step dial equipment was installed in the large cities of Calcutta, New Delhi and Bombay, only code ringing on party lines was available, and the customers objected so strenuously to listening for a code signal when their telephones rang that only private line service was installed. Observing the selective ringing feature of the Associated company's equipment, Vaish said he would consult his technical men when he returns to India to determine how the present dial equipment can be rearranged to more than double the capacity of some urban exchanges. Party lines with code ringing are now available in some magneto exchanges in India's smaller communities.

Many exhibits were given to the visitor to take back to India to supplement and clarify the information given him during the conference sessions. Exhibits included directories covering large and small exchange areas, plant construction manuals, personnel training programs, and information on financing and annual reports. At the eve of the individual conference sessions, the Associated company staff met with Vaish to discuss the material that had been covered in the previous individual sessions, especially with respect to its application to India's telephone system.

V V

>> Although Russia is the third most populous country in the world, there is on the average only one telephone for every 143 persons in the USSR. In the United States, the ratio is better than one telephone for every four people.

EDWIN M. BLAKESLEE (first row, second from right), president of Associated Telephone Co., Santa Monica, Cal., greets RAMCHANDRA VAISH, deputy director general of India's Posts and Telegraphs directorate. Other Associated company personnel are (first row, left to right) T. A. OSBORNE, general plant superintendent; HARLAN W. HOLMWOOD, vice president, and MARSHALL K. TAYLOR, attorney and personnel manager. Back row (left to right): G. T. ELLIS, general auditor; OWEN G. JARBOE, general traffic superintendent; ERNEST W. WATSON, general commercial superintendent; R. D. COLLINS, western district manager; DEAN M. BARNES, vice president and chief engineer, and GRANT SMITH, supervisor of information.

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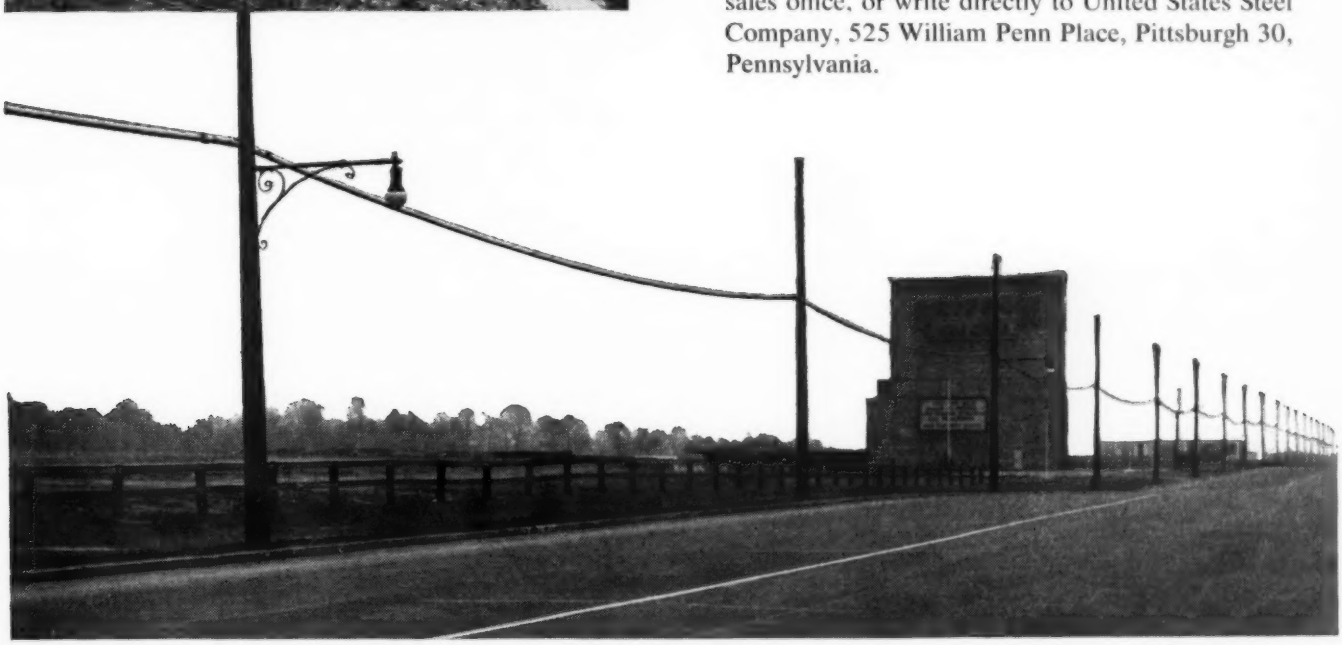

U·S·S CREOSOTE OIL

UNITED STATES STEEL

In the Nation's Capital

(Continued from page 18)

made to the need of additional revenue to "finance necessary expansion and improvement in service."

The Kentucky commission, although following a court order, considered increased costs of expanded plant and other inflationary factors, in granting the Southwestern Bell permission to continue charging increased rates previously filed.

The South Dakota commission, on the other hand, seems to string along with the Illinois commission in strict adherence to "cost of capital" based on past experience. As in the Illinois case, the South Dakota commission found that cost of money to the Bell System was 4.85 per cent a year for total capital attracted. This was translated into a percentage return, on original cost of property less depreciation, at the rate of 6 per cent. The South Dakota commission refused to follow the suggestion that higher earnings during inflation, as shown in other industries, should have any influence in fixing a utility's rate of return.

Where Is All This Leading Us?

As will be seen in the foregoing analysis of telephone rate cases all within the past few weeks, the "cost of capital" seems to be gaining new emphasis—even becoming a predominate if not an exclusive factor in fixing a telephone company's rate of return. In itself, the cost of capital is not a new consideration in determining a reasonable return. But in former years it was regarded by most state commissions as only one of a number of factors. Here are 16 different factors which have, in the past, been given varying degrees of weight, in various combinations, or selections:

(1) The risk, to which the principal and income from the utility business are subjected (whether these risks be moral or physical or otherwise); (2) the uniformity and certainty of the return; (3) the character of the business; (4) the locality in which it is placed, including the density of population; (5) whether competition exists; (6) the return secured in the locality from other investments of a similar nature; (7) whether the return is gross or net; for example, whether it is clear of taxes or other expenses; (8) the necessity of obtaining money to provide good service; (9) the size and comparative financial strength of the company—the ability of the company to borrow money; (10) the demand for money considering the prevailing rate of interest in the community in which the enterprise is located; (11) the desirability of attracting capital; (12) the necessity of providing surplus for contingencies; (13) the competency of the management; (14) the advisability of rewarding superior management in view of the character of service rendered; (15) the previous financial history of the company—whether it has been poor or prosperous; (16) the market value of money.

This reporter is inclined to the view that *some* recognition of "cost of capital" is indispensable, but that its *exclusive* use in determining a utility's rate of return would be most dangerous for public utility regulation generally. The reason for this is that cost of capital varies, from time to time, just like the cost of equipment and plant construction.

Before the depression of the 1930's the cost of capital was pretty high for both bonded indebtedness and equity financing. Between the depression and the end of World War II, under the influence of government management of credit, the cost of capital went way down. Most utilities made money refunding their own bonds at lower interest rates. Since the end of World War II, capital has begun to get more expensive. If the inflation continues, it will go up in all probability.

Therefore, to use a past cost-of-capital experience, even of recent years such as 1950 or 1951, as an exclusive index of what return a utility ought to earn in the *future*, is certainly putting the company in a strait jacket during an inflationary period. Is there an alternative? We have seen that there is. The alternative method is to use cost of capital sensibly, subject to adjustment in the light of known adverse factors which are even now operating on utility earnings, and will probably continue to operate in the immediate future. It does not take much of a prophet to see that the inflationary spiral of the last few years is *still* with us, and shows no sign of leaving us.

For the Independent telephone company there is grave danger that state commissions may, subconsciously perhaps, think of *their* rates of return, in the light of rates of return fixed for Bell System companies. This could have most distressing results for the Independents. It goes without argument that the Bell System, with its enormous organization and financial prestige, is able to attract capital a lot cheaper than an Independent telephone company. It is not too soon for Independent telephone companies to become acutely aware of this distinction, in dealing with any "cost of capital" argument in its own rate cases. If some particular commission wants to make a "cost of capital" a fetish in fixing Bell

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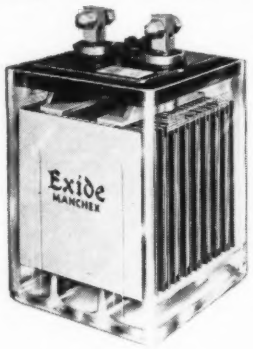

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This protector meets all requirements of the Underwriters' specifications and is listed by the Underwriters' Laboratories.

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EQUIPMENT AND ELECTRONIC CARILLONS • INDUSTRIAL, INTERCOMMUNICATION SYSTEMS • TELEVISION, RADIOS AND RADIO-PHONOGRA

System rates, Independents and other types of utility companies will certainly want it made clear that they do not belong to such a "blue chip" money club, and must have extra allowance to make up the difference.

Aside from that, there is the danger that "cost of capital" used by a regulatory commission as a *restraining influence* on utility earnings, during periods of high earnings may be relied upon by the utilities as a *cushion*, during periods of declining earnings or depressions.[1] Such reliance would be false security indeed. The "cost of capital" may be used as a ceiling but it will never be used as a floor—you may depend on that. Consider the following frank admission by the Missouri commission, in serving notice that a utility does not have any *right* to a return based on "cost of capital" under all economic circumstances:

"As in those cases, we feel that under present economic conditions this company is entitled to earn approximately 6½ per cent on its net investment. We feel that by earning in the neighborhood of this amount, the company will be able to render adequate telephone service to its subscribers, attract necessary capital and maintain its financial integrity. We do not mean by this that any utility as a matter of legal right can or should have its legitimate revenue needs measured by some definitely fixed percentage figure which we term "rate of return." We further feel that its subscribers, under present economic conditions, can and should pay rates sufficient for the company to accomplish these results."

Return Compared With Rate Base

The rate of return, like the utility rate base, has a tendency to change its style during the passing years. Those who have studied the history of rate regulation in the United States will recall how the rate base has swung from a *return on capitalization* (before 1898), to a return on *"present fair value"* (1898 to about 1925), with emphasis on *"reproduction cost"* (1925 to 1933), and in recent years to *"original cost less depreciation."*

So it is with utility rate of return. The average percentage allowed in the twenties was about 8 per cent. In the early thirties it was nearer 7 per cent. During the thirties it dropped to be about 6 per cent and sometimes lower. Now it shows some signs of rising.

Conclusions

There are four conclusions for all this discussion: (1) "Cost of capital" should not be an *exclusive* factor in determining rate of return; (2) in no event should Bell System credit or any other controlled source of capital be extended, as a measure of return, to *non*-Bell companies or other utilities; (3) *forward looking consideration of earning prospects*, especially during the present inflationary period, is required for Bell companies as well, in view of the lag between past credit perofrmance and the economic demands of increasingly costly expanding operations in the future; (4) to the extent that cost of capital is used to determine the rate of return, it ought, in all fairness, work both ways—as a floor as well as a ceiling in good times or bad. In other words, if commissions are unwilling to permit a utility's past cost-of-capital experience to cushion or support that company's rate of return, in a period of *declining* money rates and generally low earnings, then they should not use it as an artificial damper, to depress a utility's return, during generally high economic earnings.

[1] During the depression, Commissioner Lillienthal of Wisconsin used to argue that a utility ought to be allowed to earn a little extra during good times as a "depression reserve." Now that high earning times are here, whatever became of that argument?

Trouble Clearing

(Concluded from page 20)

the one-fourth ampere mica fuse was in general use by Independent companies as a "lightning arrester." It operated on a flash of heat lightning miles away and for that reason it was thought to be very effective. As a matter of fact this fuse was entirely worthless as a protection against lightning and was a cause of very much needless trouble. If any are still in use they should be removed on sight. The seven ampere tubular fuse has now been standardized for use in the line circuit; it is not a protection against lightning, but against power crosses and "power arc follow up." Operation of fuses from non-electrical causes will sometimes occur. An analysis will bring out the extent of this trouble and a remedy can be found.

Drop Wire. Drop wire is part of the outside plant, but differs from the rest of the outside plant in that drops are usually installed by the local installation force and not by traveling construction forces or construction contractors. Therefore, the responsibility for good drop wire installations lies close to home. Except for severe storms most drop wire trouble may be traced to improper installation or poor maintenance. The analysis should be made by "type of error" so the company will know just what training to give their men.

In addition to training there must be supervision and inspections. The Bell companies, for example, have traveling inspectors who work out of the general office so they will be free from any local favoritism. However, these men can see only a small per cent of the installations so these inspections must be supplemented by others made by the local supervisors. Drop trouble should be analyzed as far as possible by type of error which contributed to the trouble.

Central Office. This will be more fully covered in another article. However, analyses are much used and are very valuable in connection with excessive central office trouble. The first breakdown is "Classification" rather than "Analysis." In a manual office the classes of subscriber line trouble are: Jacks, Lamps, Cables, Jumpers, Connections, Line Relays, Cutoff Relays, etc. The classes of "other" trouble are: Keys, Cords, Plugs, Lamps, Wiring, Supervisory Relays, Tripping Relays, Other Relays, Connections, etc. Objectives or criteria may be worked out for each of these classes. In a dial office the classification differs for each of the many types of dial boards.

The analysis of any of these items which is out of line is usually made by type of trouble or by what is done to clear the trouble. The cause of the trouble is still the objective, but this can be more easily found after the type of trouble is known. Thus, a breakdown for Key Trouble would be: Cam or Roller, Spring Adjustment, Broken Spring, Bushing Trouble, Contact Trouble, etc. A breakdown for Relay Trouble would be: Winding Trouble, Magnetic Circuit Trouble, Spring Adjustment or Tension, Other Adjustments, Contact Trouble, etc. After the trouble has been analyzed in this manner, the causes and remedies will not be hard to find. Contact trouble is usually the largest item in central office trouble and the cause of most contact trouble is *dust*.

Yes, a thorough analysis of trouble is one of the best and most efficient means of determining the steps which may be taken to bring excessive or increasing trouble under control.

(To be continued)

V V

"The place to insure good government in the future is in the caucuses and the primaries. If the qualified voters neglect the caucuses and primaries and permit designing politicians to foist grafting office seekers on them (the people), they should not complain. Our election laws plainly vest the right of selecting candidates in the people. If the people fail to exercise their right, it is their own fault."—Fairfield (Iowa) *Daily Ledger*.

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✓ FASTER INSTALLATION!

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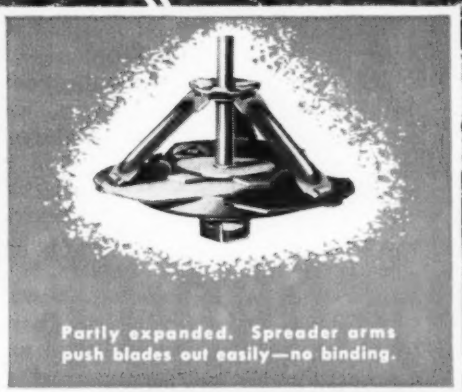

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As the tamping block strikes the tamping collar, the strong spreader arms give the steel blades a sliding action that cuts into the surrounding soil quickly and easily.

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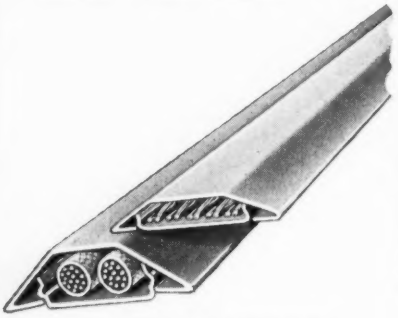

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In front of Illinois Bell Telephone Co.'s new mobile telephone center are BLAINE CUMMINGS, general manager of Chicago area, and A. J. MULLANEY, Chicago assistant fire commissioner and director of the city's civil defense corps.

Illinois Bell Develops Mobile Telephone Center

A mobile telephone center, equipped with communication facilities for use in emergencies such as air raids, explosions and storms, was unveiled recently by Illinois Bell Telephone Co.

The 31-foot, four-ton trailer, only one of its kind in the country, was tested for the first time at Chicago's Meigs airport. Trained crews will be available around-the-clock to swing the "self-contained" trailer from a central location into action wherever needed.

It is equipped with regular telephones which can be connected through a telephone exchange, mobile radiotelephones, a teletype, walkie-talkies and a powerful public address system which can be beamed to one, or all, points of the compass. The trailer will be hauled by a five-ton telephone power truck, equipped with wire, first aid equipment, its own generator and other equipment —even tree trimmers. The mobile center not only will be available for disaster work, to restore or supplement telephone service, but for other events which may require special facilities.

The unit's communications system can be almost doubled, depending on the emergency. About 500 calls an hour could be handled over the regular telephones, in addition to the mobile radiotelephones and teletypewriters.

Illinois Bell pointed out that the regular crew of the mobile unit could be supplemented by Bell System employes in any area to which the trailer may be called. Standard telephone methods and equipment makes this possible.

Day to Be New Communications Equipment Division Head of NPA

William M. Day, vice president and general manager of Michigan Bell Telephone Co., who recently went to Washington, D. C., as a consultant on special assignment for the government, on Mar. 1 will succeed Robert E. Williams, Chicago, as head of the National Production Authority (NPA) Communications Equipment Division (TELEPHONY, Feb. 9, p. 42).

Williams will complete his six-month tour of duty on that date, then return to Automatic Electric Co., an affiliate of the Gary Group, which he has served since 1927.

V V

W. F. Roberts Joins Staff Of Lincoln (Neb.) T&T

Walter F. Roberts, serving the last year of his six-year term as a member of Nebraska Railway Commission, has resigned, effective Mar. 1. On that date he will become a member of the executive staff of Lincoln Telephone & Telegraph Co., as director of personnel. He will succeed Guy Seaton, long in that position, who is retiring under the company's retirement plan.

H. H. Wheeler, company vice president, said that Roberts no longer would appear before the commission in any of company hearings before that body. Roberts said that his new position carried more promise and permanency than did a political job, and did not include the necessity of campaigning.

He was a former county agricultural agent and had been civilian defense coordinator for the state. He was an unsuccessful candidate in 1951 for the Republican nomination for congressman.

V V

>> Sweden, with almost 24 telephones for every 100 of its population, is second only to the United States in telephones related to population.

OBITUARIES

JOHN A. ROEBLING, 84, principal stockholder in John A. Roebling Sons, manufacturers of wire and cable, died on Feb. 2 in Bernardsville, N. J.

Mr. Roebling was the grandson of John A. Roebling, founder of the Roebling company, who first planned the Brooklyn Bridge, and the son of Col. Washington A. Roebling, who completed the plans for the bridge and supervised its construction.

Mr. Roebling was born in Muhlhausen Thuringen, Prussia, where his father was doing research on engineering problems connected with construction of the Brooklyn Bridge. He received a bachelor of science degree from Rensselaer Polytechnic Institute in 1888 and his master of science degree in chemistry a short time later. He was president of his class at Rensselaer.

Mr. Roebling assisted his son Donald in development of the Roebling "Alligator," an amphibious tractor used by American armed forces during World War II. He conducted his own chemical researches and financed research in solar radiation and long-range weather forecasting.

Although his philanthropic work was for the most part secret, it is known that Mr. Roebling gave extensively to various institutions, among them Rensselaer. He donated his father's collection of minerals and uncut stones to the Smithsonian Institute in Washington, D. C., and contributed $150,000 to care for and add to the collection. He was reported to have given more than $500,000 to the Smithsonian.

Surviving, in addition to his son Donald, are his widow, Mrs. Helen Price Roebling, and a grandson, Paul Roebling.

* * *

WILBUR C. HATCH, retired division maintenance supervisor, Southwestern Bell Telephone Co., Oklahoma City, Okla., died recently.

Beginning his career 42 years ago with Cumberland Telephone Co., Jackson, Tenn., Mr. Hatch was employed by Southwestern Bell in 1916 as repairman, and became wire chief the same year. He was transferred from Tulsa to Oklahoma City in 1920 as a machine switching supervisor and later became district plant supervisor at Oklahoma City.

* * *

MISS JUNE LANGE, general manager of the Elcho (Wis.) Telephone Co. died suddenly on Feb. 9. Funeral services were held in Antigo, Wis., on Feb. 13.

SIGNAL ENGINEERING

HEAVY DUTY

MULTIPLE ARM RELAYS

Designed for high degree of versatility and to meet severe operating conditions where performance reliability is vital. Adaptable to many different circuit arrangements. Rigid, cast aluminum bodies. Balanced armature construction. Highly resistant to shock and vibration. Available A.C.-D.C. Also special models built for specific requirements.

Relay assemblies can be modified to meet Armed Services applications.

Submit your requirements for our recommendations.

Engineering Representatives in Principal Cities

Write for Bulletin 30-4

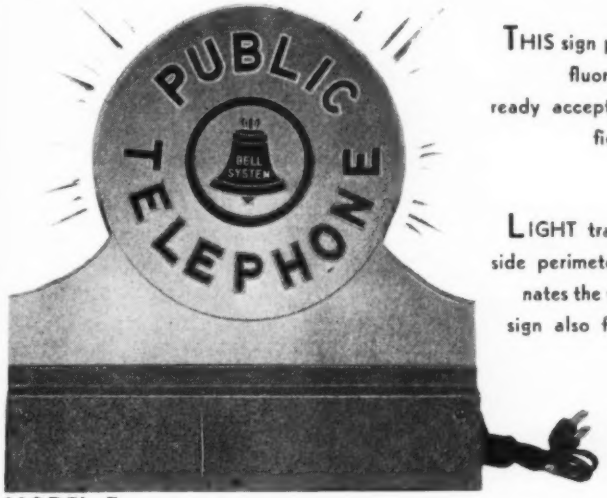
Wheelock RELAYS

SIGNAL ENGINEERING & MFG. CO.

154 WEST 14TH ST. NEW YORK 11, N.Y.

illuminated SIGNS

***Do* Produce Additional Revenue for Pay Stations**



MODEL E

THIS sign powered with a 10 Watt fluorescent tube is finding ready acceptance in the Telephone field. It directs traffic to the pay station.

LIGHT traveling around the outside perimeter of the circle, illuminates the wording on the sign. This sign also furnished with engraved directional arrows.

If desired the word "Service" instead of Bell system, will be furnished.

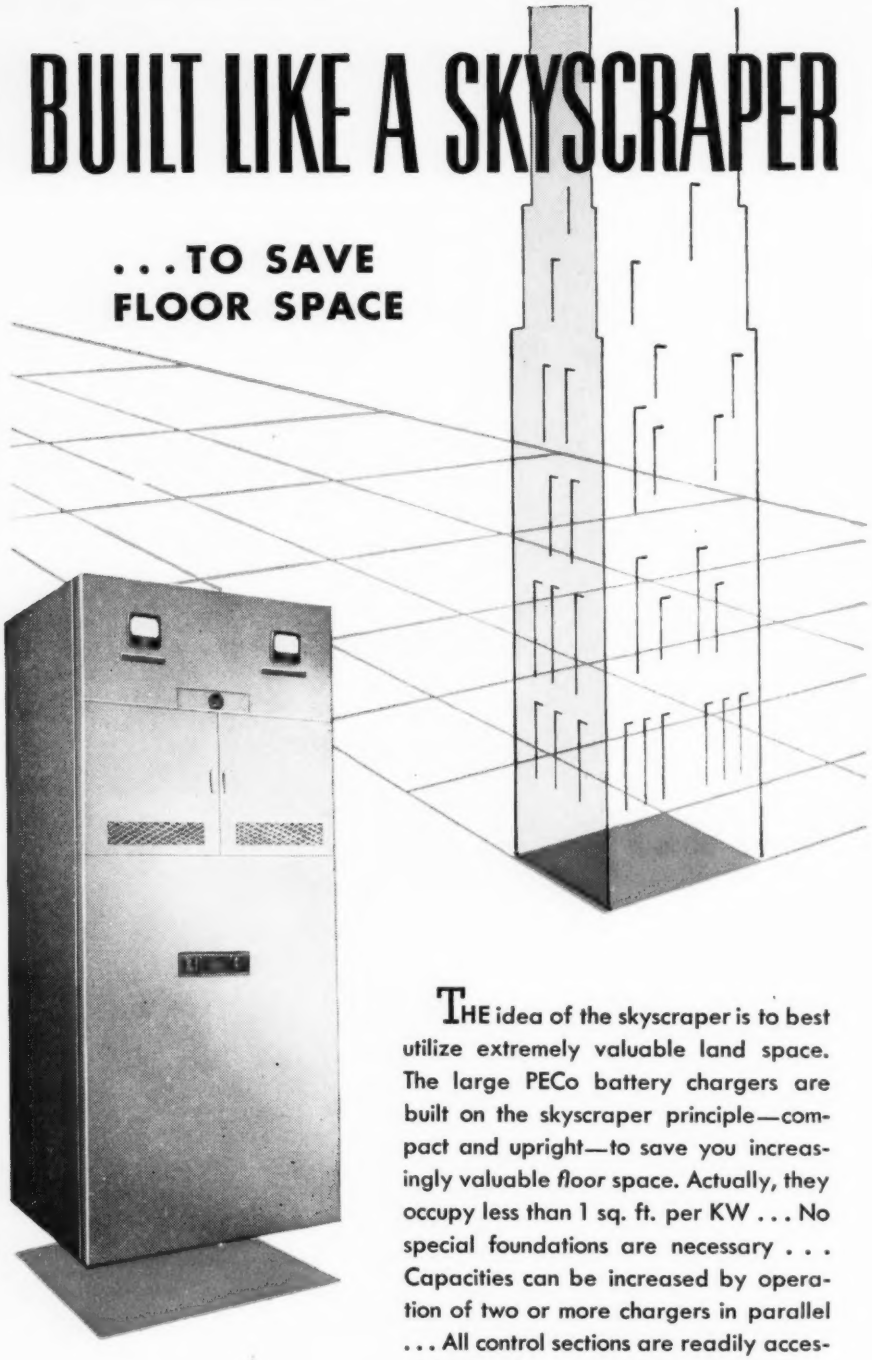
Write today for prices and full information

ARTHUR J. VOLMER

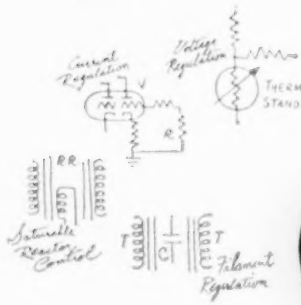
4722 N. 13TH STREET, PHILADELPHIA 41, PA. • TELEPHONE GL 5-0500

BUILT LIKE A SKYSCRAPER

. . . TO SAVE FLOOR SPACE



THE idea of the skyscraper is to best utilize extremely valuable land space. The large PECo battery chargers are built on the skyscraper principle—compact and upright—to save you increasingly valuable *floor* space. Actually, they occupy less than 1 sq. ft. per KW . . . No special foundations are necessary . . . Capacities can be increased by operation of two or more chargers in parallel . . . All control sections are readily accessible. Rectifier assemblies are on removable trays to facilitate inspection or service . . . Fully automatic; electronically or magnetically controlled and regulated; accurate floating voltage control within ±1% . . . Complete range of sizes up to 10 KW . . . Write for all the facts.



POWER EQUIPMENT *Company*

Specialists in Controlled Rectifiers Since 1935

55 ANTOINETTE STREET / DETROIT 2, MICHIGAN

BOOK REVIEW

"HUMANOLOGY," written and published by William A. Rhodes. Price, $10.

In "Humanology," the author endeavors to present a clear, effective theory of human relations and to derive valid guides for use in business, labor, government and education.

The book treats of ethics and progress; of the ideal transaction, where both parties gain; of the nature of money and interest. It finds individual, competitive wills best given sway; the profit motive to be ethically and practically right; and "flows" of goods, services, employes, new money, best established and varied by open markets and by negotiations among people immediately interested—basic Americanism, that is.

Humanology then describes the vast number of varieties and gradations among people in their actual and latent working and buying capacities, proceeding to point out how, largely by a methodical matching of work to workers and goods and services to consumers, the specific qualities possessed by various people may be turned to profitable account in existing business, in industrial migrations, in the expansion of markets.

Analyses of other subjects follow:

In the chapter on "Business Organizations," monopoly is not found to be evil, but rigidity is; and rigidity is a cause of unpredictable disruptions in all groups: Families, small firms, large firms, empires. Partial decentralization is named as a helpful antidote.

In a "Public Utilities" chapter, instead of present government-utility practices, grant of franchise is proposed—with the requirement of competent utility operation at reasonably maximum continuous profit, such profit to be had through full market coverage by service classifications proper in kind, number and price to match the variety of customers encountered.

In "Government," it is pointed out that the income tax turns out to be less conducive to general welfare than a simpler arrangement; the diversion of war materials by excise taxation on civilian usage is found better than allocations; and tariffs followed by yearly reductions are for commercial emergencies only.

On the whole, "Humanology" seeks to point out the techniques of commercial devlopment as a practicable, civilizing measure for increasing production and distribution with less human effort and wastage. Descriptive of the world of people in motion with its ramifications and opportunities, this book may have general educational value; but it

may be more useful to policy makers and executives in business and government.

The present edition is a preliminary one, mimeographed on 8½ x 11 pages and well bound.

"Humanology" is priced at $10. Order from William A. Rhodes, 203 W. 81st St., New York 24, N. Y.

V V

Buy Stock in Illinois Company; Plan Consolidation

Louis Ritter, controlling stockholder of Farmers Fountain Telephone Co., Columbia, Ill., recently sold his interests in the company he largely owned, controlled and managed, to H. W. Gentsch, of Waterloo, a director of Harrisonville Telephone Co.

Fred Schulmeister, president of Harrisonville Telephone Co., operating exchanges in Waterloo, Dupo, Columbia, Valmeyer, Prairie du Rocher, and serving some rural areas, said that when plans were completed the Harrisonville company would consolidate with the present Farmers Fountain Telephone Co., and thus be able to eliminate a dual service.

Telephone Employe Average Earnings Correction

Because of an error in the data contained in the fourth and fifth paragraphs of an article titled "Dept. of Labor Reports Average Earnings of Telephone Employes," printed in TELEPHONY, Feb. 2, p. 36, we are printing the revised material below.

Average weekly earnings of line construction, installation and maintenance employes amounted to $83.54 in October, 1951, as compared with $75.95 during October, 1950. Average hourly earnings of this group increased from $1.786 to $1.961 and average weekly hours increased from 42.5 to 42.6 since October, 1950.

Included in this group of employes are those in such occupations as central office craftsmen, installation and exchange repair craftsmen, line, cable and conduit craftsmen and laborers. During 1950 these employes made up 25 per cent of the total number of non-supervisory employes in telephone establishments reporting hours and earnings data to the Bureau of Labor Statistics of the Labor Department.

ALPHADUCT DROP WIRE

carton packaging

saves you time and money

- easier to handle
- easier to inventory
- stacks neatly, saves space
- saves workmen from injury
- prevents wire from being crushed

Once you start using Alphaduct Drop Wire you will find out that the handy carton packaging has real dollars and cents advantages.

Not only does your wire arrive in perfect condition, but the sturdy carton protects it all the while it's in your warehouse.

The cartons are easier to handle than loose coils. They can be stacked higher without danger of falling and the wire on the bottom will not be crushed or bent. Space is saved, inventory taking is simplified, and the possibility of injuries to workers from tumbling coils is removed.

We try to make Alphaduct the finest, longest lasting drop wire money can buy. Quality materials are used throughout, step-testing during every phase of manufacture assures uniform high standards. Alphaduct drop wire is dated with a color coded thread so you can tell for sure how long it lasts.

Try Alphaduct Drop Wire

ALPHADUCT WIRE AND CABLE COMPANY • MILLTOWN, NEW JERSEY

NATIONAL DISTRIBUTORS • LEICH SALES CORPORATION, CHICAGO, ILLINOIS

REGIONAL DISTRIBUTORS • PANKEY SUPPLY CO., CHARLOTTESVILLE, VA.

THE LINDSAY TELEPHONE SUPPLY CO., CLEVELAND, OHIO

SOIL COMPACTION
Cuts Costs on TRENCH JOBS!

Use BARCO RAMMERS

SPEED UP trench *backfill* jobs! End the nuisance of expensive "go back's" to add more dirt and to repair settled pavement areas. Use Barco Rammers to get HIGH DEGREE COMPACTION of original backfill *immediately*.

Telephone construction engineers report that one man with a Barco Rammer can tamp trench 18" wide at the rate of 360 to 600 feet per hour, with lifts up to 24", hour after hour!

ASK FOR DEMONSTRATION

The Barco Rammer is a new tool with many uses! Tamps backfill to 95% compaction at amazingly low cost—Let us show you actual figures. Ask for our nearest distributor to give you a demonstration.

• Send for CATALOG No. 621

BARCO MANUFACTURING COMPANY
1811C Winnemac Ave.,
Chicago 40, Illinois

Builders of Portable Gasoline HAMMERS and RAMMERS

'Voice With a Smile' 40 Years Old

"The Voice With the Smile Wins" was 40 years old last month. The famous slogan associated for generations with the telephone operator was born in January, 1912. Its author was Howard G. Stokes of New York Telephone Co.

Stokes, now living in retirement at Hamilton, N. Y., has seen his brain child quoted, paraphrased, copied, adapted or imitated throughout the world. He has also seen it stand the test of time as a perfect expression of the friendly spirit of service of the telephone organization.

Bell telephone companies throughout the country are marking the anniversary. Stokes was introduced to the nation during the Telephone Hour broadcast on Feb. 11.

"The Voice With the Smile Wins" first appeared as the tag line of a booklet titled "Winning Friends by Telephone," long since out of print. The slogan attracted immediate attention and within a few months appeared under the glass of subway ticket seller counters, on the cashiers' desks in restaurants and stores and in scores of other locations.

Within a few years the phrase was incorporated, not only into the advertising of Bell telephone companies, but in that of a great many other public corporations and concerns. It has appeared over the years in stories in magazines and other periodicals; poems have been written on it; columnists have reported it; cartoonists have depicted it; it has been used as a text for sermons, and even the stage has adopted it.

Early users of the phrase included Don Marquis and "Tad," famous cartoonist. The first stage show to incorporate it was "Miss Springtime," a sprightly musical of the period.

The booklet containing the famous phrase was written for internal use, but the slogan broke its bounds and has been part of the language and philosophy of the English-speaking world ever since.

>> The longest aviation radio-telephone system is that operated by one American International Air Line. Its round-the-world network is 19,687 miles long.

How to Build Better Rural Lines at Lower Cost per Mile

Write for Your Copy of This Free Book!

You can save material and man-hours, and build better rural lines, when you use *Crapo* High-Tensile Telephone Line Wire.

Long-span, lower-cost rural construction is described in the illustrated Manual shown above. Designed to assist telephone men in furthering their plans to extend and improve rural service, this book includes stringing sag and tension data, helpful information on construction practices, metalicizing, transposition, pole guying, and related subjects.

This FREE book is yours for the asking. Write for Manual No. 203 today!

Crapo HIGH-TENSILE LOW-RESISTANCE LINE WIRE
Crapo HTL-85
Crapo HTL-135

Distributed by Leading Jobbers

•

INDIANA STEEL & WIRE COMPANY
Muncie, Indiana

A Minister Speaks

A Telephone's Worth

IN THE Nashville *Tennesseean* a eulogy of the telephone appeared recently, written by Dr. Walter R. Courtenay, pastor of First Presbyterian Church, Nashville. It might contain a wealth of ideas for advertising copy, but it surely is a source of satisfaction to telephone people who are associated with this "personality"—the telephone.

Dr. Courtenay wrote:

I have just talked to Mrs. Courtenay by long distance. The miles which separate us have been eliminated. Distance has been made meaningless. The telephone has defeated space and has changed the driving rain from a threat to peace-of-mind to a sleep-producing song. With a sense of real appreciation I lean forward and give the telephone a tap of real affection.

True it is that I am not always so pleased with him. Sometimes he is noisier than a trailer truck on a loosely bolted bridge. Many times he screams at me when I am trying to get out a special piece of work. Time and time again he shatters my rest or meditative mood and I am tempted to put him in the deep freeze or hang him by his heels out the window. He is not always a kindly, friendly fellow. He can be as pesky as a nagging wife or a complaining politician.

Still, he has blessed every year of my life since we first met. He has enabled me to do faster work, better work, more work. He has taught me self control, patience, tolerance, and appreciation. His is not an easy job! Yet, he never complains when I grab him up in angry haste, shake him, threaten him, shout at him and ignore him. He is quite a boy!

Sometimes I wish he looked more glamorous. I get tired of his black suit and straight-laced manners. His figure is good enough to warrant his wearing gayer clothes, sprucing up a bit, looking as successful and as important as he really is! He would look good in grey, brown and tan. He could even wear some shades of blue!

Yet, maybe he should remain as is! In his parson-black he suggests self-abnegation and dedication. His is a priest's job. His is a ministry. As parson, priest, minister, and servant he is an authority on human nature. To him the world reveals its secret thoughts. He, above all others, knows the sinfulness of man, his moments of greatness and generosity, his times of tears, terror, and triumph. The voice which drops words as if they were ice cubes is no stranger to him. The moonlight voice of romance is a commonplace. The roaring thunder of anger, the soft shadows of disappointment, the chill of winter hopes and the fragrance of expectation are part of him. He is the Cornucopia of good to some; the house of ghosts to others. He is the bridge between minds, hearts, homes, offices, cities and continents. To some he is a life line; to others an anchor to windward.

He befriends the sick, the lonely, the young, the aged, the successful, the failure. He helps run every enterprise, and is a part of every scheme. He catches criminals, implements laws, wages wars, wins battles, finds the lost, and is kindly physician to millions. He deals with the highest and the lowest schemes of men, and plays his role in the ceaseless drama of existence. He is partner to the devil and to God. He serves the sinner and the saint alike. He is part of death—he is part of life.

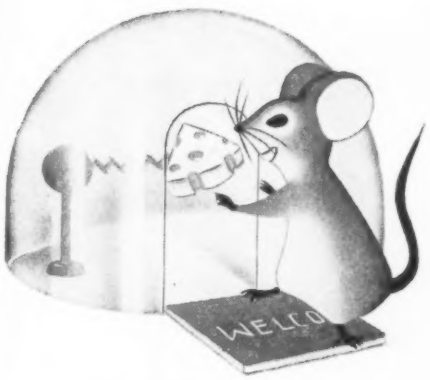
If by some weird and awful action he should suddenly die, the world would become a strange place of existence. Everything would stumble and shudder to a bewildered pause. The silence of death would descend. For in our day he is the nerve path of our society. Without him we are a confused people.

There will be other days when I will hate you, friend in sombre garb. There will be times when I'll want to strangle you with your own cord. But today, sensing your worth to man, I would praise you, and thank God for you, your inventor, and the great unseen army of efficient men and women who make it possible for me to defeat time and space and do a better job. Mr. Telephone, I salute you!

V V

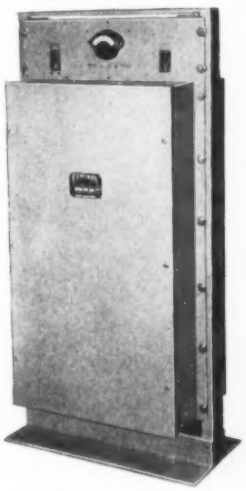
>> More than a million persons in this country desiring telephone service in 1952 will not get it if current government copper allocations are not increased.

We've Built a Better Mousetrap



FLOTROL

THE BATTERY CHARGER WITH NO MOVING PARTS *



Model 1200B

And telephone men are beating a path to our door.

They've found that FLOTROL does what they always hoped their battery charger really would do; IT HOLDS CONSTANT FLOATING VOLTAGE on the battery.

They've found, too, what it can mean to have a charger which doesn't require attention, one they can depend on to do its job, year in and year out, without costly and annoying routine maintenance or adjustment.

For complete information, write for Bulletin 160, which describes the single-phase models, from 1/2 ampere to 24 amperes, and Bulletin 161 which covers three-phase models from 25 amperes to 200 amperes.

* *No good on mice.*

LORAIN PRODUCTS CORPORATION
1122 F STREET LORAIN, OHIO

FLOTROL PARTNERS IN DEPENDABILITY SUB-CYCLE

ENDURPRENE
A COMBINATION HARD TO BEAT FOR LONG-RUN ECONOMY AND RELIABILITY
• DROP • BRIDLE
— PREMIUM GRADE INSULATION —
— TOUGH, ENDURING NEOPRENE JACKET
DISTRIBUTED BY KELLOGG SWITCHBOARD AND SUPPLY COMPANY
MANUFACTURED BY
GENERAL INSULATED WIRE WORKS, INC. PROVIDENCE, R. I.

International Harvester Adds LP-gas Engines to Line

The motor truck division of International Harvester Co. has introduced, for the first time in motor truck history, factory-built liquefied-petroleum-gas-powered engines as Underwriters Laboratories listed equipment on trucks, W. K. Perkins, manager of motor truck sales, has announced.

International's new LP-gas (propane-butane) engines are optional on all International truck models equipped with the company's heavy-duty "Super Red Diamond" engines. The new LP-gas-powered models include the LP-185, LP-195, and LP-205 "Roadliners," and all other models in the L-185 through LF-210 series, Perkins said.

The potential production of LP-gas is large, Perkins pointed out, with costs in most states running several cents per gallon under that of gasoline. The fuel is available at approximately 4,000 bulk distributing plants in the United States. Large fuel tanks, standard on International's LP-gas-powered units, permit trucks to run as far as 400 miles between refuelings.

In equipping highway tractors for LP-gas operation, International took note of the large quantities of high-octane propane-butane available and recognized the potential savings in fuel costs over either diesel or gasoline, especially in locations enjoying low LP-gas cost per gallon, Perkins said.

"Fleet operators will also find that the life of motor oil is considerably lengthened," he continued. "This is because the use of LP-gas eliminates the washdown of lubricating film and oil dilution. With these elements of deterioration eliminated, it is natural that a cleaner engine will result, and a resultant substantial reduction in maintenance costs should be experienced."

The net effect of these salutary operating conditions, Perkins said, will be to reduce engine wear and cylinder erosion, increasing the mileage interval between engine overhaul.

The high-octane qualities of LP-gas make use of higher compression ratios possible on the three LP-gas adapted Super Red Diamond engines, Perkins said. The three engines are the "372," the "406," and the "450."

"By incorporating especially engineered LPG carburetion, cold manifolding, and other refinements in our pro-

Fear that the spread of a strike in a country-wide power company would cause two automatic exchanges to become inoperative led the Southern Continental Telephone Co., Cookeville, Tenn., to install Homelite portable electric generating equipment in these exchanges.

On Dec. 10, 1951, employes of the Weakley County Municipal Electric System went on strike. The strike was still continuing at various points in the county when Southern Continental installed the stand-by generators. Since a protracted power failure would disrupt service at Martin and Dresden, Tenn., the equipment was installed in these exchanges so that it could be immediately placed in operation should an emergency arise.

Electric service in other parts of Weakley County has, at times, been interrupted to a serious degree, one town being without service for 20 hours.

The cbove photo shows portable generating equipment housed in a tent back of the Martin office. W. E. JONES, district manager, stands at the front of the tent while P. L. SUMMERS, switchboardman for the company, kneels inside.

duction designs," Perkins said, "we can take advantage of the combustion qualities of LP-gas which forms no carbon sludge or gummy deposits." He pointed out that because of the dry gas characteristics of propane-butane fuel, the elimination of these foreign properties is effected in these LP-gas engines.

Manifolding arrangement is entirely new because successful engine operation in this system depends upon a cold induction system free from the hot spots necessary for gasoline engines. This was effected by completely divorcing the intake and exhaust manifolds, eliminating the connection between the manifolds as it exists in the standard engine.

The standard gasoline tanks have been replaced, on the LP-gas models, by heavy-steel, dual, 62-gallon liquid measure tanks and are also Underwriters listed. They are filled to approximately 90 per cent capacity, depending upon temperatures, allowing space above the liquid for expansion. These heavy, specially constructed tanks are designed to store the fuel supply under all operating conditions. The tanks are refilled at service stations by pumping the fuel in liquid form through a hose fitting which is attached to the fill valve on the pressure tank. Safety features include vertical venting pipes extending above the cab to permit discharge of reliefed gas into atmosphere; seal caps and automatic excess flow shut-off valves on fuel tanks and in the lines; electric shut-off valve; and extreme high-pressure lines and fittings.

V V

Seek to Clear Party Line Telephones in Emergencies

At a recent meeting of Ohio-Michigan Firemen's Association in Toledo, O., means were discussed for compelling telephone party line users to "give up the line" to subscribers making emergency calls.

The discussion centered around a heavy fire loss in a Toledo home occasioned by a neighbor's being unable to break into a party-line conversation to report discovery of the blaze. Firemen reported several other similar instances.

V V

>> With the addition of the Island of Guam to American Telephone and Telegraph Co.'s Long Lines overseas system late in 1951, it is now possible for telephone users in the Untied States to reach some 90 foreign countries and territories or all but about four per cent of the total telephones in the world.

HANG THE LOAD ON HUBBARD HARDWARE

HUBBARD GUY ATTACHMENTS

Hot Galvanized

No. 7584 No. 6001 No. 6004

Hubbard makes a complete line of Guy Hooks and Attachments to meet the great variety of needs and requirements of various operating companies. Included is a range of sizes in light and heavy "regular" guy hooks, crossarm guy loops, and the "closed" type storm guy attachments in steel and malleable iron. To give the strand a safe bending radius all styles are constructed with rounded wire-grooves. Write for detailed descriptions or call the Hubbard Distributor nearest you.

HUBBARD HARDWARE FOR THE TELEPHONE LINE

OVERHEAD

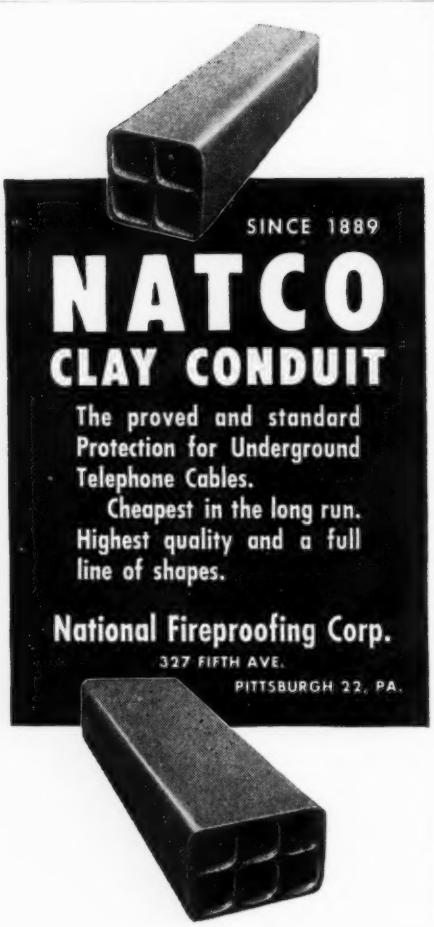
Cable Suspension Material—Wireholders
Pole Seats and Balconies—Clevises
Braces—Drive Hooks—Messenger Dead Ends—Extension Arms—Long Span Material—Pins—Clamps—Guards—Stubbing Bands—Guy Protectors—Guy Clamps
Pole Struts—Clips—Straps—Hangers
Carriage Bolts—Rings—Transposition Brackets—Eye Bolts—Pole, Corner and House Brackets—Guy Hooks—Strain Plates—Storm Guy Straps—Lags—Machine and Hubeye Bolts—Sidewalk Guys
REA Telephone Hardware

UNDERGROUND

Cable Racks—Manhole Ladders and Steps
Pulling-in Irons—Expanding Anchors
Cable Shields—Screw Steelwing Anchors
Anchor Rods—Ground Rods and Clamps

HUBBARD AND COMPANY
ESTABLISHED 1843
PITTSBURGH • CHICAGO • OAKLAND, CALIFORNIA
"Hang the Load on Hubbard Hardware!"

Members of the sales and executive staffs of L. M. Berry & Co. at an annual sales conference in Dayton, O.


SINCE 1889
NATCO
CLAY CONDUIT
The proved and standard Protection for Underground Telephone Cables.
Cheapest in the long run.
Highest quality and a full line of shapes.
National Fireproofing Corp.
327 FIFTH AVE.
PITTSBURGH 22, PA.

L. M. Berry & Company Holds Annual Sales Meeting

Territory and division managers and general office executives of L. M. Berry & Co., Dayton, O., attended a sales conference recently in the Biltmore Hotel in Dayton to review the production of directories, and to discuss the maintenance of public relations for telephone companies, greater accuracy and increased directory advertising revenues.

The above photograph, taken during the conference, includes (left to right) Phil Engle, general art director; J. J. Mullen, special territory representative, Louisville, Ky.; D. T. Grantham, Mississippi division manager, Jackson; J. W. Craig Jr.; Wm. Maier Jr., Kentucky division manager, Louisville; L. E. Getzler, Pennsylvania division manager, Harrisburg; W. J. McGirl, Alabama division manager, Birmingham; S. H. Rainey, Louisiana division manager, New Orleans; E. F. Tinnerman (standing), Wisconsin division manager, Milwaukee, and I. J. Klass, western manager, Dayton.

B. E. Hale (standing), Tennessee division manager, Nashville; F. L. Hawker, eastern manager, Rochester, N. Y.; John W. Berry, general sales manager, Dayton; J. P. White (standing), southern manager, Louisville, Ky.; L. M. Berry, Dayton; W. A. Steuer, general manager, Dayton; H. F. Scott, northwestern manager, Milwaukee, Wis., and J. E. Whalen (standing), staff assistant, Dayton.

W. C. Welch (standing), staff trainee, Dayton; Ralph Maner, Florida division manager, Tampa; B. D. Addington, mid-eastern division manager, Bristol, Tenn.; F. D. Carlton, Ohio division manager, Dayton; J. Z. Wilson, eastern sales manager, Rochester, N. Y.; H. C. Evans, western division manager, Warsaw, Ind.; R. W. Brundige, staff assistant, Dayton, and W. L. Wolcott, personnel and training director, Dayton.

V V

Pennsylvania Service to Bell

Service for the 24 subscribers of North Paradise (Pa.) Telephone Co. was taken over recently by Bell Telephone Co. of Pennsylvania, according to Ralph Ellis, DuBois, area manager. Service will also be provided for 223 persons on the waiting list in the same area.

V V

Interstate Cuts Over 39th

The 39th exchange — Oakesdale, Wash.—of Interstate Telephone Co., Spokane, Wash., to be converted to dial, was cut over on Jan. 30, according to W. R. Jarmon, president.

Federal DIAL EQUIPMENT meets strict specifications of the REA

FEDERAL TELEPHONE AND RADIO CORPORATION

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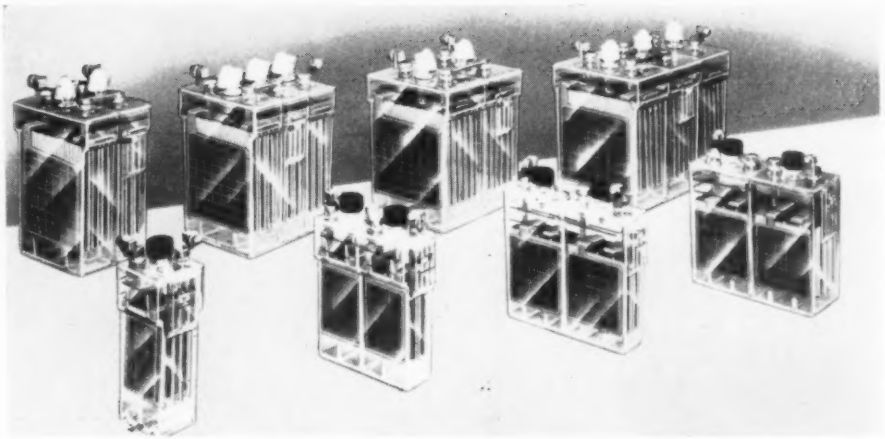


Gould Announces New Line of Plastic-Cased Batteries

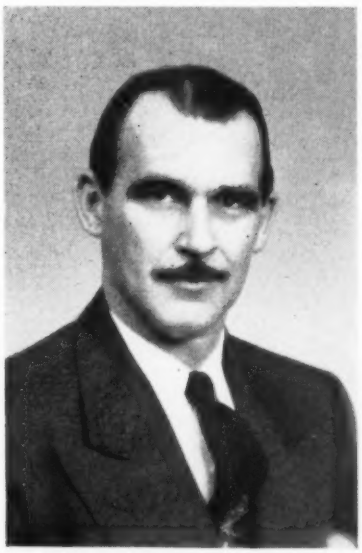
Gould-National Batteries, Inc., Trenton 7, N. J., recently announced a new line of plastic batteries for use in telephone installations, alarm systems, power-plant control systems, and other applications where batteries are used for stand-by emergency power. (See cut.) Because of their light weight, the plastic-cased batteries are also being manufactured for aircraft use, the company reports.

The new line is available over a capacity range of from 10 ampere-hours to 100 ampere-hours (at the 8 hour rate of discharge).

The polystyrene containers are 40 per cent lighter in weight than conventional containers, are smaller in overall dimensions, do not react with electrolyte, are transparent (giving visible indication of electrolyte level), and have better shock resistance than do glass containers, according to the company.

Of special importance today is the fact that the styrene material is now more available than other container materials. Also, plastic containers can be produced three to four times as fast as those of glass. Containers are produced at intermediate molding pressures and temperatures (500-650 degrees F.) and require no curing as in the case of rubber containers. Another production advantage of the plastic container is the ease with which it can be formed into intricate shapes and contours, the company says.

Additional information may be secured by writing the Gould-National company.



R. E. TEMPLETON, who was recently named central regional manager of Highway Trailer Co., Edgerton, Wis. Templeton has been active in the trailer and transportation field for 14 years. He has been associated with American Bantam Car Co., Freuhauf Trailer Co., and Gramm Trailer Corp.

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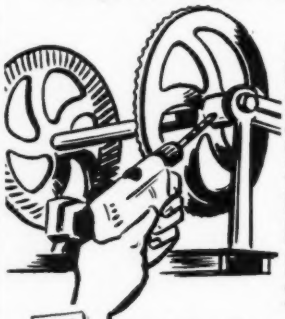

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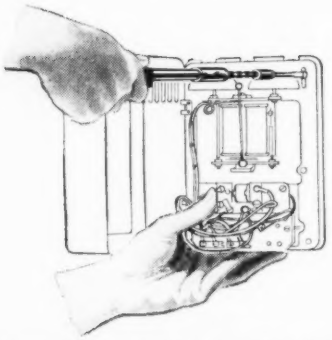

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